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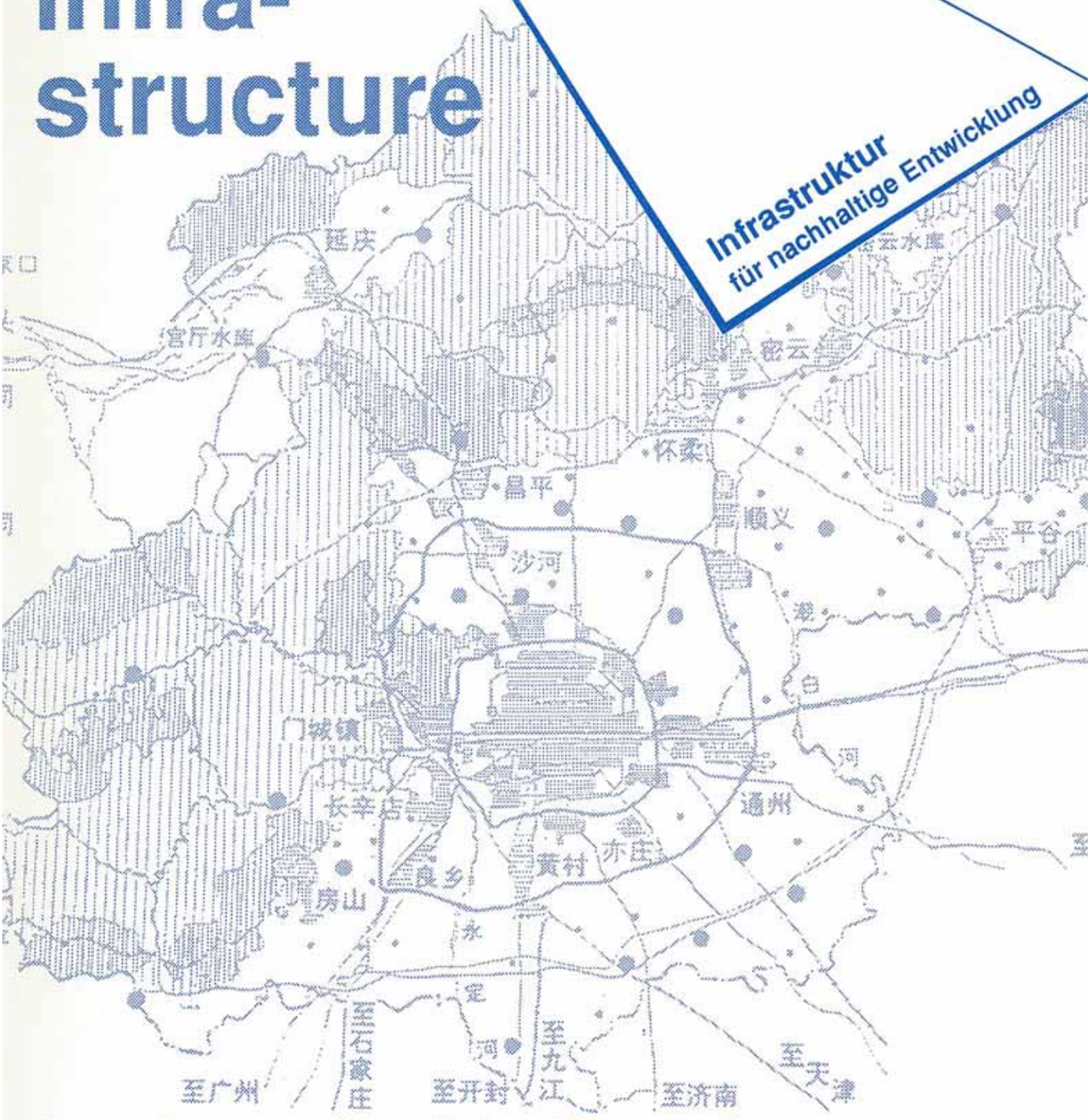
Infra-structure

Infrastruktur für nachhaltige Entwicklung



for Sustainable Development

Infrastructure for Sustainable Development

Impressum

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Editorial

The Centre for Infrastructure Planning of the University of Stuttgart hosted an international symposium on the topic of *"Infrastructure Developments in Developing Countries – Infrastructure for Sustainable (Urban) Development"*, September 27th-29th, 1995. Eighty participants from over 20 countries attended, many of them graduates of the Centre's "Master of Infrastructure Planning" course.

After 12 years of teaching (post) graduate students from developing countries, the Centre felt that it was time to find out from its graduates if their studies in Stuttgart had been profitable. If so, their ensuing professional experiences would make interesting contributions to the international discussion (after Rio and before Habitat II) on sustainable development. The idea for a symposium was born. Though the papers presented are only small pieces of the mosaic of discussion on sustainable development, the symposium was very successful – which speaks both for the Centre's integrated, interdisciplinary concept of teaching infrastructure planning, and for its graduates.

TRIALOG is publishing these papers in cooperation with the Centre for Infrastructure Planning in order to make them available to a broader public. Editorial duties were taken over by *Nina Mapili* (manager of the Centre), *Horst Reichert* (ex-manager of the Centre) and *Gislind Budnick* (co-publisher of TRIALOG), all of whom have been associated with the Centre since the beginning.

The topics presented deal with General, Financial, Urban and Technical Aspects of Infrastructure Planning, and Strategies for the Future.

General Aspects: Opening the discussion, *Niraj Verma* analyses the concept of sustainability from a philosophical point of view. *Ato Brown*, on the other hand, accepts the Brundtland Commission's definition, and continues with thoughts on challenges and prospects for the future.

Financial Aspects: *Delfa Uy* presents a case study from Metro Manila: the Capital Investment Folio Process, a method used to identify those projects which are most likely to contribute to the government's objectives. *Ronnie Navarro* presents private-sector participation in infrastructure development in the form of Build-Operate-Transfer (BOT) programs, citing the Philippine experience, while *Syed Amir Raza* outlines reasons and strategies for the privatization of infrastructure facilities and services in Pakistan.

Urban Aspects: *Samuel Adoboe* provides an overview of newer approaches to urban development and the supply of infrastructure in Ghana. He is followed by *Mao Qizhi* on development strategies for the Beijing Metropolitan Area. The new South African government's program to help its poorer citizens become home owners is explained by *Eberhard Knapp*.

Technical Aspects: Increasing industrialization and trade are accompanied by an increase in traffic accidents. *Fred Higenyi* deals with this aspect of development in his paper on traffic planning in Kampala, Uganda. Proposals for appropriate methods of private waste collection in Accra, the capital of Ghana, are made by *Frank Schweizer* and *Collins Annoh*. A prize-winning proposal for energy-efficient housing is presented by *Chitra Chidambaram* and *Duvvuri Subbalakshmi*.

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1 / 1996

48

Strategies for the Future: *Gedion Asfaw,* until recently a vice-minister in Ethiopia, builds on his technical and political experience to discuss policies and strategies for sustainable development. *Girija Gorkhaly* describes a successful Nepali example of interdisciplinary, inter-agency cooperation in the conservation of Phewa Lake, while Columbian *Juan Pablo Garcia Vargas* tackles the complex of problems related to housing for low-income families. Finally, *Peter Wolff* explains the German government's development aid policy.

Seen together, these papers give proof of the relevance and vitality of the concept of sustainable development, and also confirm the correctness of this developmental approach. At the same time, they make clear that sustainable development cannot be achieved solely through the construction of large amounts of high-quality technical infrastructure; rather, it is crucial that it be supported by the necessary institutional infrastructure – or as Gedion Asfaw put it: "good governance and the derivatives thereof".

The symposium and the publication of the proceedings in TRIALOG were made possible with the generous support of the German Academic Exchange Service (DAAD), the University of Stuttgart, the Friends of the University of Stuttgart, Rotary International, the Carl-Duisberg-Gesellschaft, the Ökumenisches Studentenwerk and many infrastructure-related companies such as Züblin, Daimler-Benz, Fichtner and Weidleplan Consulting.

Gislind Budnick, Nina Mapili, Horst Reichert

Infrastruktur für nachhaltige Entwicklung

Das Zentrum für Infrastrukturplanung an der Universität Stuttgart organisierte vom 27. - 29. September 1995 ein Symposium zum Thema "Infrastruktur für nachhaltige (Stadt-) Entwicklung". Absolventen aus 12 Jahren Aufbaustudiengang zum "Master of Infrastructure Planning" aus vielen Ländern der Dritten Welt erhielten Gelegenheit, Erfahrungen, Probleme und neue Ansätze in ihren derzeitigen Arbeitsfeldern darzustellen – ergänzt durch einige externe Vortragende.

TRIALOG stellt diese Vorträge in Zusammenarbeit mit dem Zentrum für Infrastrukturplanung hiermit einer breiteren Öffentlichkeit vor. Die thematische Bandbreite der Beiträge umfaßt konzeptionelle Fragen, Finanzierung, Stadtplanung, technische Aspekte der Infrastrukturplanung und Strategien für die Zukunft – anhand von Erfahrungen und Projekten aus Äthiopien, Kolumbien, China, Ghana, Indien, Pakistan, Philippinen, Nepal, Südafrika, Uganda.

Die Beiträge belegen die Relevanz und Vitalität des Konzeptes der "Nachhaltigen Entwicklung" und bestätigen die Richtung dieses Denkansatzes. Die Ausführungen verdeutlichen, daß sich die nachhaltige Entwicklung eines Landes in der Quantität und Qualität der technischen Infrastrukturelemente widerspiegelt, wobei die soziale und administrative Infrastruktur (öffentliche Verwaltung, Bildungseinrichtungen etc.) sehr wichtige Voraussetzungen für die Beteiligung der Privatunternehmen und der Interessensvertreter (stakeholders) schafft.

The Centre for Infrastructure Planning
University of Stuttgart, Federal Republic of Germany

Nina Mapili

Infrastructure for Development

A well-planned system of infrastructure facilities is one of the primary prerequisites for a country's – sustainable – development. There is, especially in poor countries, a pressing need for qualified professionals capable of directing the conception, planning, construction and management of complex infrastructure facilities and networks, while at the same time working within the constraints of severely limited budgets and against the lack of even the most basic infrastructure.

Goals must be formulated, criteria determined, critical needs conter-weighed, and policies and programs designed that will lead to long-term, sustainable development, and not just short-term gain. The technical specialists responsible for guiding this process should, paradoxically, be generalists; they should be knowledgeable in subjects ranging, for example, from ecology to economy to sociology, from sanitary and transport engineering to urban design and regional planning. Moreover, they must be able to integrate this knowledge synergetically in their approach to development problems.

Nina Mapili, an architect trained in the U.S.A. and Germany, has been manager of the Centre for Infrastructure Planning since 1993. In addition to her continuing work as an architect, she has been associated with the Centre since 1983, previously in conjunction with the subject area "Ecological Aspects of Infrastructure Planning".

A Master's Course in Infrastructure Planning

The University of Stuttgart's Centre for Infrastructure Planning was founded to meet the need for such professionals. Since 1983, it has been offering a two-year master's course in infrastructure planning for experienced engineers and architects from developing and threshhold countries. Classes are taught in English in order to make the course accessible to the widest possible field of applicants.

The Centre coordinates a diverse network of classes covering all aspects of infrastructure planning and taught under the aegis of 15 institutes from three faculties: Architecture and Urban Design; Civil Engineering and Surveying; and History, Social and Economic Sciences. This pool of highly qualified teachers is augmented by specialists from government and industry.

Ten years after the graduation of its first class, the Centre hosted an international symposium entitled "Infrastructure Developments in Developing Countries – Infrastructure for Sustainable (Urban) Development". Though the symposium was open to all interested persons, the event centered around graduates of the Centre for Infrastructure Planning's master's course. Representatives from each of the graduating classes attended, and made up the main body of speakers, thereby providing insight into the many directions successful and productive careers in infrastructure planning may take.

Today, MIPs (Masters of Infrastructure Planning) have gone on to become high-level civil servants, independent consultants, infrastructure planners in public and private positions, professors, and so on. They are becoming a stronger and stronger force among the ranks of the decision-makers who are guiding the development of many of the world's poorer countries. Based upon the papers presented at the symposium, they aim to make that development sustainable and equitable.

Part of the concept behind the foundation of the Centre was to offer education as an alternative type of development aid; one whose benefits would increase over time by shaping the decision-makers of the future. With its emphasis on an interdisciplinary, sustainability-oriented approach to infrastructure planning, and the consistent selection of well-qualified students, the Centre is well positioned to fulfill this goal and make a positive mark on the development of many countries.

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Symposium participants from past courses and staff of the Centre for Infrastructure Planning, from left to right: Nina Mapili, Girija Gorkhaly, Chitra Chidambaram, Dr. Horst Reichert, Prof. Niraj Verma, Francisco Luciano, Alicia Chaves Arroyo, Ato Brown, Samuel Adoboe, Gedion Asfaw, Delfa Uy, Prof. Frank Englmann, Joyce Rahman, Juan Pablo Garcia Vargas, Frederick Were-Higenyi, Syed Amir Raza

Press conference (above), Gedion Asfaw presents his paper (below)

InterInfra -

A Network for Infrastructure Planning Professionals

The idea for a contact network of infrastructure planners was first introduced in 1986 by Vasanth K. Bhat from India and Gerson Lupatelli from Brasil, students at the Centre for Infrastructure Planning. Vasanth Bhat: "We wanted to join our technical skills and make a collective effort to contribute positively towards a fruitful North-South cooperation in the spirit propounded by the great German statesman Willy Brandt".

In the beginning, InterInfra's primary focus was on providing assistance to western consultants and project executors or collaborators in a variety of fields. Large amounts of time and energy were put into informing potential German partners about the existence of the InterInfra Network. Now that there are about 150 graduates of the course, many of whom have taken over responsible positions as planners, consultants, and managers, the organisation's focus has shifted more towards a network through which infrastructure planners seek contact with colleagues.

Despite this tactical shift, the North-South idea remains intact, thanks in part to the fact that some of the most active users of the network direct development projects for Northern organisations and tap InterInfra to help in personnel and information searches. A number of German consulting companies have also begun to seek contacts through InterInfra.

The potential of such a network could be seen at the symposium; information was exchanged, common contacts discovered, ideas bounced back and forth. In recognizition of this potential, the InterInfra members present refined the network by subdividing into regional organisations and naming representatives responsible for coordinating regional dialog and activities. Contacts to Germany and general news dissemination will still be handled through the Centre.

InterInfra was co-sponsor of the 1995 symposium, albeit primarily in spirit. If all goes as planned, it will lead the organisation of the next symposium, thereby emerging as a new force on the international "infrastructure scene".

Understanding What We Can't Define? The Epistemology of Sustainable Development

Niraj Verma

Zusammenfassung

Dieser Artikel ist eine planungstheoretische Auseinandersetzung mit der Frage, was 'sustainable development' (nachhaltige Entwicklung) bedeuten kann.

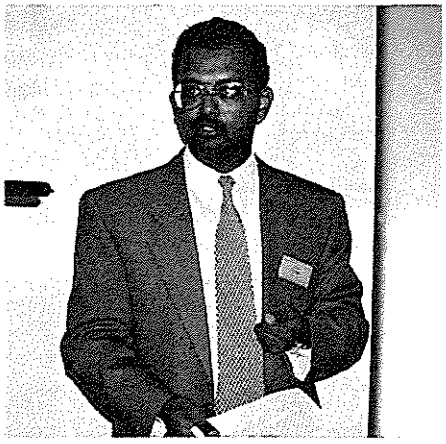
Der Autor vertritt die Ansicht, daß 'sustainable development' als Begriff seine Akzeptanz aus der Tatsache entwickelt, daß es sich hierbei immer um zwei oder mehrere sich widersprechende Ideen handelt, die einer Symbiose zugeführt werden müssen.

Diese Aufgabe wird bestimmt von dem epistemologischen Problem der Entscheidung, welche Faktoren für das Erreichen dieser Symbiose berücksicht werden müssen und welche vernachlässigt werden dürfen. Hierbei reicht der Rückgriff auf rein technische Kriterien nicht aus, denn die Möglichkeiten der nachhaltiger Entwicklung hängen auch von psychologischen und ideologischen Kräften ab.

Der Autor schlägt zwei Strategien vor: (a) die Unterscheidung der 'zweckorientierten' von den 'strukturellen' Kategorien bei der Organisation des Planungswissens, (b) einen ethischen Ansatz zur 'Nachhaltigkeit' im Sinne von Hans Jonas, bei dem das Gewicht ethischer und moralischer Forderungen für die Rechtfertigung und Implementation nachhaltiger Entwicklung eingesetzt wird.

Dr. Niraj Verma (Master of Infrastructure Planning 1985, Stuttgart; Ph.D. 1991, Berkeley) is assistant professor at the University of Southern California, Los Angeles. Dr. Verma, who is from India, teaches master's and doctoral courses in design and planning theory and has published widely in the area of planning.

Although their Greek roots, *Oikos* and *Ecos*, point to the same meaning, ecology and economics evoke very different images. One suggests preservation; the other accents development. One looks at energy balances and trophic levels; the other calculates gross product and per capita incomes. Despite these differences, the notion of sustainable development has found popularity in both camps. With varying degrees, its appeal also extends to such diverse professions as engineering, accountancy, city planning, and agricultural science. From where is this appeal? What is common to sustainable agriculture and to sustainable bond markets? Or, to sustainable natural resources and sustainable democracies?



In this paper,[1] I will argue that the intellectual popularity of sustainable development comes from its message of integrating two or more opposing forces. Sustainable development is attractive because it aims at a balance between doomsday scenarios and notions of progress and development. And while it teaches us to be cautious, it also recognizes the dynamism and optimism of a technology-driven society. Such a message would be wonderful, except that our track record of "striking a balance" is woefully inadequate. We have rarely done well when reconciling competing objectives. And just when we think we have, aspects of the problem we ignored come back to haunt us. Take, for instance, the perennial debates on the appropriate balance between public and private enterprise. Despite the end of the cold war and the movement of many governments towards market-oriented reforms, there is little consensus on the right mix between public and private initiatives, whether the issue is transportation planning for Los Angeles or economic reforms in Beijing.

So what should we do? One strategy in the quest for a stable balance is to lean towards a "comprehensive solution"; i.e., to include more and more aspects so that there are no surprises. The philosophy of holism and other such ideas support such a strategy. But, since the total list of relevant issues is virtually limitless, a comprehensive approach can become a process with no end in sight. After all, isn't everything which goes on on our planet – and elsewhere! – relevant to the concept of sustainable development? I will argue that one way out of this problem of comprehensiveness is to focus on the purposes of sustainable development rather than engage in meticulous calculations of costs and benefits. Sustainable development, I will claim, belongs to a class of concepts which are teleological and for which conventional reductive measurement techniques may be less appropriate. That is, we should tie our justification of sustainable development to ends, intentions, and goals rather than to modes, costs, indicators, and methods.

There are two reasons for such a stance. First, an agreement on purposes keeps our options open on methods, ap-

proaches, and subject-matter. Purposeful thinking allows us to reach closure without pruning our terrain or prematurely declaring some issues as being irrelevant or less important.[2] And seen this way, the alternative would be capricious: waffling on goals while being fixated on and decisive about methods! The second reason has to do with implementation. While technical justifications of sustainable development – such as those which use contingent valuation techniques or willingness-to-pay arguments – are logically convincing, I will argue that they pass the burden on to the implementation process. This is because technical reasoning is enormously powerful in an intellectual sense but exceedingly limited when confronted with the psychological, social, political, and ideological forces which play a dominant role during implementation. *Reliance on technical reasoning amounts to endorsing the separation of planning and implementation.* Moral and ethical justifications, on the other hand, are likely to provide greater inspiration. Since morality takes issues of personal and social behavior head on, a convincing moral argument is likely to align political and social forces in ways that facilitate implementation. Using some works by Hans Jonas and my own recent work on ethics in planning, I will argue that we must think of ethics of sustainable development as an instrument to implement the idea of sustainability, and not merely as a normative guide to decide which course of action is the best one.

The Rhetoric of "Balance"

The balance metaphor pervades all discussions of sustainable development. The balance can be sought on many fronts: between optimism and caution, present and future, private and public, individual and collective, long-term and short-term, and other such tensions. For instance, one view of sustainable development tries to meliorate development (as in real-estate or economic development) with conservation (as in historic preservation). Here, one force suggests change; the other advises caution. Sustainable development, in this example, suggests that a judicious mix of preservation and change is more desirable than biasing in favor of one or the other extreme. Or, to take another example, when the tension is between present and future consumption. We know that fertilizers bring about green revolutions but they also interfere with long-term soil fertility. The philosophy of sustainable development suggests that neither present nor future have primacy and it is through a blend or a balance that we are likely to develop better social and economic policy. In this sense, sustainable development can be contrasted to the partisan philosophies of unmitigated consumption or overcautious preservation. Unlike them, it aims to bring a dual message of hope and caution.

More generally, we can usually identify two opposing concepts and the notion of sustainability suggests that a judicious balance between these extremes can be reached and should be reached. American architect Peter Calthorpe [1986, 2] attests to this in no uncertain manner: "In all cases the goal is balance: a balance between uses, between climate and the needs of the building, between the community and the individual." Or, as the Aalborg Charter of the European Commission [1994] declares,[3] "sustainability is neither a vision nor an unchanging state, but a creative, local, *balance-seeking process* extending into all areas of local decision-making." [emphasis added]. Similar ideas, which posit the search for a balance as the corner stone of sustainable development, can be found in virtually all fields which comprise the scholarship on sustainable development.

But do we know how to implement such a balance? Unfortunately, at all levels (local, national, and global), our track-record of satisfactorily reconciling competing considerations is rather undistinguished. And this is particularly so when these considerations address important constituencies in our decision-making apparatus, in our self-images, and in our knowledge and belief systems. Indeed, we can say with some confidence that if an issue can be reconciled easily it is not important and if is important it can't be easily reconciled. The difficulties in adjudicating private and public systems, automobile and rail, fossil fuels and renewable energy, low and high density development, are examples. Although philosophy, from Kant to Hegel to Marx, tells us that a dialectical synthesis emerges from opposing forces – and that this is the way knowledge grows – such a synthesis has proven hard to reach.[4] Take, for instance, the problem of air pollution in Los Angeles county – a topic that has attracted widespread scientific attention[5] – and at least a partial solution to the problem in the form of car-pool lanes. We know that automobile exhaust in Los Angeles is the most important mobile source for NO_x and carbon monoxide pollution and we can calculate reasonably reliable levels of car pool ridership to mitigate these influences. But all fails because we can't motivate our clients to use car pool lanes.[6] Is motivating the public part of the transportation planner's duties? Or is this part of implementation, separate from planning? Moreover, unless we are able to motivate the public to use car pool lanes, how accurate is it to say that we have balanced the need for transportation with the harmful effects of automobile exhaust on the environment?

The Connectedness of Professional Knowledge: An Essential Tension

One demand of a balance is that we try to include more and more into our planning. Certainly, there is more than one precedence for this kind of expansion of the territory of planning. The systems approach and the idea of comprehensive planning are two examples. But as every realist knows, there is a downside to increasing the scope of our work. Planners have a professional obligation to act in a timely manner and every extra bit of research, every foray into an unknown area, comes at the cost of the timeliness of our actions. The quest for unlimited knowledge may be well justified, but what use is this quest if it incapacitates us into inaction?

There are strong arguments for broadening the terrain of knowledge and there are equally persuasive reasons for restricting its domain. The strongest arguments for a broad and capacious knowledge base come from epistemology, which tells us that since our problems are interconnected, anything less than an unbound idea of professional knowledge might exclude important aspects of our problems. Like the lost airline pilot who was happily making good time, we might end up solving the easiest but the wrong problems. At the same time, practicality and common sense emphasize closure of our terrain. Like Buridan's donkey who died of starvation while de-

ciding which stack of hay to eat, we, too, run the risk of getting incapacitated by the extent of our concerns.

In related work [Verma 1995], I have argued that this tension between narrow and wide, and between contemplation and action is – to borrow Kuhn's pithy phrase – an "essential tension" for the professions; i.e., it is a recurrent and defining problem for professional inquiry. I suspect that most scholars will not disagree with this formulation. But the implications of this tension – the operational meaning – will certainly be controversial. The tension implies that if we favor a broad understanding of professional knowledge, we also have the burden of proposing an organization of the territory so as to make action possible. And if we favor a more contained approach, we have the burden of showing that what is left out isn't relevant or isn't crucial. This is, as I see it, a new perspective on an old problem. If we agree that the tension of expansion and closure is an essential tension, we can no longer argue that sustainable development is about ecology or economy, about population or the physical city or the social milieu. It is all of these and more, and if we choose one aspect, we have to show how we account for the omission of the others.

Allow me to illustrate with an example. One definition of sustainable agriculture might link it to the production of food to meet needs but without serious harm to the environment. We might say that this calls for a balanced fertilizer policy. Fertilizer increases food supply but it also causes loss of long term soil fertility. So, is that the issue? Should we be seeking a balance between short-term and long-term soil fertility? Not quite! Fertilizer production is not a clean technology. Phosphate mining for fertilizer production, for instance, causes significant erosion of top soil and negatively affects air quality. In the Aqaba region of Jordan, for instance, which is the home of some of the best deposits of phosphate in the world, air quality is a known casualty of the increase in phosphate production. So, are we being comprehensive if we add air quality in our balancing act? What about pollutants which get transported by wind and other carriers and end up seriously interfering with the hydrological cycle? At least since Rachael Carson's *Silent Spring*, we cannot pretend that the atmospheric transport of contaminants is not a serious environmental and ecological hazard. Add to this the jobs lost by closing down fertilizer plants, and the domain for our balancing act becomes larger and larger. We don't have to belabor the point. The question of balanced fertilizer use is accompanied by several other attendant issues and tensions.

Assessing how far to extend our inquiry is like determining whether air or water is more important for survival. Indeed, so difficult are these problems that one theorist has called them "wicked problems," [Rittel and Webber, 1973] which defy exact formulation or consistent solution. One might take issue with the terminology here. But it is clear that these difficulties are here to stay and that ignoring them is hardly going to make our tasks any easier. Indeed, we might say that a key issue for sustainable development concerns how we might choose the boundaries of our inquiry in some legitimate way.

Structural and Purposeful Categories

Suppose we lean in favor of a broad territory of sustainable development, how might we organize this territory so as to suggest how action becomes possible? One way of organization is through categorization. It is useful to distinguish between purposeful and structural categories. Purposeful categories, as the label suggests, are those which deal with purpose; all other categories are structural. For instance, categories which separate ideas or artifacts according to the methods used in reaching them, are structural. Examples of this might be categories such as rational, irrational, intuitive, deductive, inductive, etc. Disciplinary categories, which divide the world into sets of approaches, are also structural. Examples are categories with labels like "sociological approach," "economic approach," etc.

Structural categories are enormously efficient – perhaps too efficient. Their power comes from an analytic tradition of dividing the subject-matter so as to be able to make fine and insightful distinctions. But insight, in this tradition, is defined by a curious mix of surprise and logical conviction. So long as the logic is maintained, the more unexpected a hypothesis, the more desirable it is considered to be.[7] In scientific inquiry, the most famous structural categories are those of objectivity and disinterestedness and they apply to the validation process. Surprise, on the other hand, is a sign of interestedness; it is not part of validation but a function of the expectations of an intellectual community.

Purposeful categories, on the other hand, are not particularly efficient to analyze. They include such elusive and hard to measure categories as motivation, satisfaction, morality, and even, life, death, and consciousness. Attempts to impute measures for these categories on anything more than a nominal scale result in their structuralization. For instance, economists talk of "willingness to pay" or of "contingent valuation" to measure concepts such as satisfaction or to assess the pleasure derived from natural resource conservation. The so-called "existence value" [Krutilla 1967], for instance, is a measure of the satisfaction that one derives from knowing that something, such as a species or a habitat, exists. But, although the goal is to measure "satisfaction," this is rarely a psychological measure and the term is often simply a euphemism for the measuring of manifest choices.

The case for a purposeful, or what philosophers call a teleological, view of the world, can be made in many different ways. One way is proposed by German philosopher, Martin Heidegger [1966, 45], in *Discourse on Thinking*. Heidegger cautions against the pervasiveness of "calculative thinking," and tells us that it results in a "flight from thinking." To understand calculative thinking, Heidegger tells us, contrast it to meditative thinking which has to do with meaning and not with instrumental calculation. The distinction is similar to teleological (meditative) thinking and structural (calculative) thinking. However, both these distinctions are problematic: they are easier to justify philosophically than to apply practically. For example, everything; i.e., every plan, every instrument, every artifact, every human, can be considered to be purposeful. Elsewhere, I have dealt with this question in detail [Verma 1993, 1994] and have shown that categories such as "who is a beneficiary of a plan," and "what are the motivations of the participants," should be given the label of purpose while measures of costs, benefits, efficiency, etc.,

are structural. I do not want to repeat that argument; in this essay I want to add to the discussion on purpose by suggesting that calculative thinking overestimates our freedom from constraints and mistakes the logic of analysis for a logic of implementation.

The Meaning of "Therefore" in the Logic of Implementation[8]

How are the two logics, the logic of analysis and the logic of implementation, different? To examine this, consider an example of a logically convincing argument from transportation engineering. The traffic signaling system is built on a logic which says that when the light turns amber before a driver is in an intersection the driver must slow down and stop. But this disarmingly simple logic has exactly the opposite effect on many drivers: it prompts drivers to speed so that they might just cross the intersection before the signal turns red. How do we explain this? Why does such a reasonable-sounding logic fail? Traditionally, we have explained such failures of logic by invoking categories like politics, selfishness, greed, or defiance, or in scientific terms, by attributing the problems to NIMBYism,[9] Prisoner's dilemma, or the difficulties in the interpersonal comparison of utilities. The problem, however, is that the meaning of these terms is far from clear. Take "politics," for instance. We use it in a "catch-all" sense; i.e., as a residual category which shows our failure to analyze rather than as a category which displays serious understanding. After all, if politics, greed or defiance are sufficient to ruin the precise calculations of transportation planners, shouldn't transportation planning be researching precisely these themes?[10]

More generally, the logic of argument is described using an inferential rule, such as *modus ponens, modus tollens*, etc., of Aristotelian logic. Inferential rules have two premises, typically a major and a minor premise, followed by a conclusion. All cars use fuels; the Volkswagen is a car, *therefore* the Volkswagen uses fuel. In this example, if we accept the major and minor premises we accept the conclusion. But let us ask, what is the power behind the "therefore" in the deduction? For many this power is intuitive and not in need of justification. But epistemology, or the science of knowledge, has worried precisely about such questions so that our knowledge be put on a secure footing. The recognized ways of validation are many but the most popular ones are validation by appealing to our powers of reason, by empirical observation, or by both. But, there is a class of deductions where the criteria of reason or of observation in their pure forms seems grossly inadequate. And this is the class that concerns us the most.

Consider this example: 1. non-biodegradable material is harmful to the environment. 2. no one wants to harm the environment. 3. therefore, non-biodegradable materials should not be used. This is also an example of a deduction, but it differs significantly from the previous example. One difference might be that the latter is explicitly normative while the former less.[11] Logicians have analyzed these kinds of deductions where one premise is explicitly normative. A key finding of their work is that normative deductions presuppose normative premises; i.e., at least one of the premises must be normative for a deduction to be normative. [Bochenski, 1974]. Now, is this true of our example? The conclusion: "therefore biodegradable materials *should not* be used," is clearly normative. But is there a normative premise? One can argue that the proposition, "No one wants to harm the environment," is a tacitly normative premise: it is not a description of the case but a statement of what should be the case. Or, we might say that it signifies what people intend, not what they do. This would allow us to retain our logical schema. If we exercise this option, we are in effect using the separation between intention and implementation to keep our logic intact while simultaneously developing a contingent explanation for a phenomenon which might not have otherwise fit our schema. In the context of experimental science, the noted philosopher Karl Popper has called such contingent explanations "auxiliary hypotheses," which buttress hypotheses which might otherwise fail scrutiny.

More importantly, however, a separation, such as that between intention and implementation,[12] creates a demand for a theory of ethics. Once we accept that at least one of our premises is normative, the validity of our conclusion is no longer only a matter of logic; it is also a matter of ethics. *But the more insidious result is that the demand is for a theory of ethics which is removed from the science of logic!* In recent years two attacks on such separations have been made. One comes from followers of Charles Peirce, the founder of American Pragmatism. This group asserts – following Peirce – that logic is a science of ethics. That is to say, the power of "therefore" in a logical conclusion is derived from ethics; there is no logic without ethics. The second attack on the separation comes from the philosopher and ethicist Hans Jonas [1984]. Jonas claims that ethics, as we know it, has highlighted intentionality to the exclusion of competence. Arguing that the nature of human action has changed in a technological world, Jonas tells us that all conventional ethics – including the much-celebrated Kantian and Rawlsian imperatives – are developed around volition and intention. In a technologically constrained world, says Jonas, the possibilities of human action have changed so dramatically – we have so much technological power at our finger tips – that an ethics of intentionality is insufficient as a tool which provides normative guidance. Instead, claims Jonas, we need cognitively demanding ethics – ethics for an endangered future – where competence and responsibility, not intentionality, occupy the pride of place.

In recent work [Verma 1996] I have argued that Jonas' distinction between ethics of volition and ethics of responsibility can be fruitfully used to separate "ordinary" ethics from "professional" ethics. That is to say, while the defensible exercise of volition may be the ethics for a lay person, for a practicing professional to be ethical is to practice one's craft with a high degree of knowledge, skill, and responsibility. And in the case of planning or design, the most relevant knowledge is that of the consequences of actions: what is the likely result if we declare some part of the forest as a natural reserve, what will happen if we reduce the budget for the Environment Protection Agency, would a much more integrated European Union provide a better organizational context within which to handle questions regarding the environment? Becoming knowledgeable about these and other such questions is to be an ethical planner of sustainable development.

Beyond Jonas: A Systemic Theory of Ethics

If Jonas rightly recognizes the dangers that technology poses for our environment, he does not pay equal attention to the effects of technology on our educational system and on our cognitive powers; he does not heed Heidegger's warning of the "flight from thinking." Evidence of this flight is, however, all around us. Easy access to technological gizmos – a television program designed for distance learning is an example – is supposed to make learning easy; it makes kids intellectually lazy. Higher education ends up making students so specialized that it breeds a gap between academics and practitioners. Worse, our educational system imposes on us what Andre [1992], writing in the context of medical education, has appropriately termed "moral blindness." But, these developments should not come as a complete surprise. After all, as Jacques Ellul warned us so many years ago, technology has an enslaving character about it: be it the technology of the automobile which reduces – and sometimes replaces – the demand for walking, or the technology of computation which focuses attention on data processing to the exclusion of fundamental questions about our subject-matter.[13] Jonas is right, but only partially so. We need – as he points out – imperatives of responsibility for an endangered species; but we also need the cognitive wherewithal to treat our problems systemically.

Seen this way, ethics has three simultaneous roles to perform, and each role demands a particular kind of knowledge. **First**, in the tradition of Kant and Rawls, a plan is ethical only if the volition associated with its action is also associated with the exercise of "duty" or "good-will" by a planner or a group of planners. This understanding of ethics may be said to demand deontological knowledge; i.e., knowledge of the world as it ought to be. Preparation for such a task demands what Jon Elster [1983] has called "character planning," rather than formal intellectual training. **Second** – and this is due to Jonas – an ethical sustainable development plan must not only contain a proposal for action but it must also include an explicit prediction of its short-term and the long-term consequences. The knowledge demanded here is predictive: it involves the tracing of "whatifs" on a long time horizon. To train ethical planners in this tradition would be to teach them to understand the social effects of technology, its risks, and its potentials. **Third**, ethics should become the bearer of a systemic meaning. That is to say, the measure of performance of a sustainable plan may include aspects outside its immediate vicinity and may extend far into the future. The consequence of systemic ethics is that we can no longer treat tunnel vision and compartmentalization as just academic oversights; they are moral failings and bring with them all the sanctions that a confident morality can impose. The cognitive demands of systemic ethics are high: empathy and the ability to link seemingly disparate areas of inquiry; to think relationally; and to act in a way that overcomes the tendency to fragment, are demanded equally. Unlike methodologies which are dependent on the analytic tradition of inquiry – hypothesis testing is an example – systems approaches do not buy into the premise that knowledge grows by partitioning the planning domain such that fine-grained and insightful propositions can be asserted with confidence about smaller and smaller segments of the domain.[14] Systems approaches oppose this and call instead for an inquiry where similarities are valued over differences and purpose is valued over method [Verma 1993, 1996a]. A systemic ethics as proposed here, however, differs from traditional systems approaches by tying its justification to ethics rather than to pure epistemology. It is not content to merely propose an integrative methodology; it is concerned with how such a methodology might be implemented. To this end, it takes an instrumental view of ethics and uses the power of moral and ethical argument to cut through the psychological, political, and ideological forces that come in the way of implementation.

An Operational Summary

Allow me to summarize and reinforce the implications of my discussion for the field of sustainable development. There are, as I see it, the following points:

1. The challenge for sustainable development is to show how a balance between conflicting philosophies and ideologies is possible.

2. Such a task runs into epistemological difficulties in determining just what to include and what to exclude in computing a balance. If unresolved, these epistemological difficulties cannot match the psychological and ideological forces which dominate during implementation and which render parochial any meaning of sustainable development.

3. Two strategies are proposed to deal with these difficulties: (a) purposeful categories to organize the field of sustainable development, and (b) an ethical approach to sustainability where ethics is instrumental rather than only normative; i.e., where the full force of ethical and moral mandates are used to justify and implement sustainable development.

4. The second strategy, ethical justification, is shown to imply a mandate for systemic and integrative thinking and a focus on similarities rather than differences.

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Endnotes

1 This is a modification of a paper presented at the Conference on Sustainable (Urban) Development, Universität Stuttgart, Stuttgart, Germany, September 27-29, 1995 and the Annual Meeting of the Association of Collegiate Schools of Planning, Detroit, October 19-22, 1995. I am grateful to participants at both these conferences for their comments and to the DAAD for a grant which made it possible for me to travel to Stuttgart for the conference.

2 I have developed this idea of using purposeful categories to bound our terrain more fully in Verma [1993, 1995].

3 The Aalborg Charter is a declaration approved by participants at the European Conference on Sustainable Cities and Towns in Aalborg, Denmark on 27 May 1994. Participants to the conference included representatives of cities across the European union including representatives from seven German cities.

4 This is not because of lack of trying. Recall, for instance, the several decades old literature on the the role of public and private provisions – the von Hayek and Oskar Lange debates are among the best known.

5 "Clearing the Air in Los Angeles," was the title of a recent article by James M. Lents and William J. Kelly in the *Scientific American*, October 1993, pp. 32-39.

6 The latest and much touted "last" addition to the Los Angeles freeway system, the Interstate freeway 105, opened in 1993. The freeway included a car pool lane which was severely criticized for its high construction cost. Till this day, ridership on the car pool lanes remains abysmally low, making this a ready target for those critical of transportation planning in the region.

7 The caveat "other things remaining equal" refers to the ability of the research design to withstand intellectual scrutiny from the community of inquirers most interested in its subject-matter. Without this, "unexpectedness" or "surprise" has little meaning.

8 The power of "therefore" in logic and its connection with ethics has been the subject of considerable historical interest. See, for instance, Williams [1985]. My use of the contrast between the logics of analysis and implementation is, however, influenced by the works of my mentor, C. West Churchman, and particularly by his recent essay [Churchman 1994].

9 An American acronym for "not in my backyard", NIMBYism has come to signify resistance by residents to such issues as location of incinerators or land-fills in close proximity to their communities.

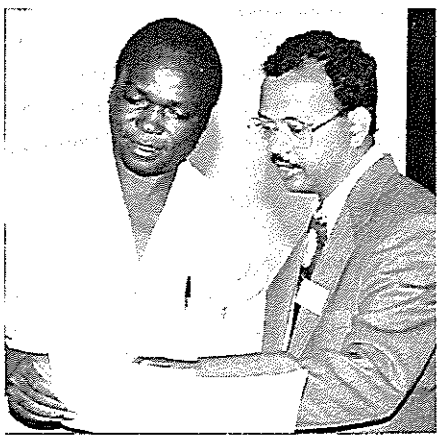
10 Some have construed their work in this vein. I am thinking of Hirschman's development of the categories of Exit, Voice, and Loyalty in analyzing public policy.

11 We have to keep in mind, however, that the contemporary sociology of science has shown that the normative-descriptive distinction is a problematic one.

12 This is not an unrealistic separation in the planning theory literature. Recall that in the separation of planning from implementation, as in the rational comprehensive model of planning, a plan is seen as little more than consisting of a set of operational "intentions."

13 I have dealt with these questions elsewhere. See Verma [1993] for a similarity based methodology of integration and Verma [1994] for a philosophical discussion which shows how the technology of hypothesis-testing may dictate the choice of problems.

14 For example, Type 1 and Type 2 errors, which determine the power of a statistical test, are measures of how successfully we can divide our population into separate domains: one for which the hypothesis holds and the other for which it doesn't.



Niraj Verma and Fred W.-Higenyi, both Master of Infrastructure Planning 1985

Sustainable Development: Challenges and Prospects for Developing Economies

Ato Brown

Zusammenfassung

Nachhaltige Entwicklung wurde 1987 im Report der Brundtland Kommission "Unsere Gemeinsame Zukunft" als "meeting the demands of the present generation without compromising the needs of future generations" definiert.

Nach dem Weltbank Entwicklungsbericht 1992 wird erwartet, daß die Weltbevölkerung von 1990 bis 2030 um 3.7 Milliarden Menschen zunehmen wird. Demnach wird die Produktion von Lebensmitteln verdoppelt werden müssen, Industrieproduktion und Energienutzung werden sich weltweit verdreifachen; in den Entwicklungsländern sich verfünffachen. Die folglich zu erwartenden Umweltschäden wären enorm.

Als Antwort werden die Perspektiven der Weltbank zur Förderung nachhaltiger Entwicklung dargestellt.

Wichtige Prinzipien einer erfolgreichen Entwicklungsarbeit sind dabei folgende:

- *Entwicklung muß wie ein Konzern, nicht wie eine Behörde gemanagt werden,*
- *Management muß auf möglichst niedrigem institutionellen Niveau stattfinden und alle Interessensvertreter (stakeholders) einbeziehen und*
- *macht absolute Verantwortlichkeit und Transparenz notwendig.*

Ato Brown (Ghana, Master of Infrastructure Planning 1989) has spent many years working in the area of water and sanitation management and policy making for the UNDP and World Bank. He recently joined SKAT, the Swiss Centre for Development Cooperation in Technology and Management, as a Municipal Solid Waste Management and Urban Development Specialist in St. Gallen, Switzerland.

Abstract

Humanity stands at a cross-road. On the one hand are the countries of the rich and industrialised North, where, to a large extent, basic needs are taken for granted. On the other hand are poorer countries of the South, where access to basic development needs is, for the most part, a luxury. Between this great divide is a multitude of governments and development agencies all hurrying to do something about the ever worsening poverty, hunger, ill health, illiteracy, inadequate settlement infrastructure and the continuing deterioration of the ecosystem.

Neither North or South can escape the consequences of inaction. Any attempt by poor countries to adopt or blindly copy development strategies used by the rich North will be flawed and impracticable. The world simply does not have the resources for the luxury of duplicating the development standards of the North in the South.

Governments, particularly in the developing world, are left with no choice but to adopt sustainable development strategies that put people at the centre of action and integrate social and environmental policies within an appropriate macro-economic and fiscally disciplined environment. Strategies should aim at socially responsible economic development which protects the resource base and the environment for the benefit of future generations, and which ensures the widest participation of all stakeholders in their formulation.

The paper draws lessons from the experience of the World Bank, and outlines some benchmark conditions for achieving sustainable development.

Overview

The term "sustainable development" was brought into common use by the World Commission on Environment and Development (the Brundtland Commission) in its 1987 report, "Our Common Future". Since then, the term has been used on every platform imaginable (before and after the Rio Earth Summit of 1992) to mean everything and sometimes nothing. The Brundtland Commission defined sustainable development as "meeting the needs of the present generation without compromising the needs of future generations". Even though most definitions in recent time have forced a strong linkage to the environment, the Brundtland Commission's definition is still heavily endorsed by many development specialists. I will thus not attempt to re-invent a new definition of the notion "sustainable development", but deal with issues surrounding the concept with the assumption that no matter how different people define it, common sense and a good look around us will provide a clear enough picture of the consequences of development actions in the past and the need to deal with the concept whatever it means to us.

The Skewed World of Development – The Great Divide

For most people living in Western industrialised countries, time is of the essence: busses and trains arrive on schedule, blackouts or cuts in drinking water supply are unheard of. Even people who lived through the Second World War have forgotten these bad memories. There are no gaping pot holes on the streets, and life continues smoothly. The opposite is the reality for people liv-

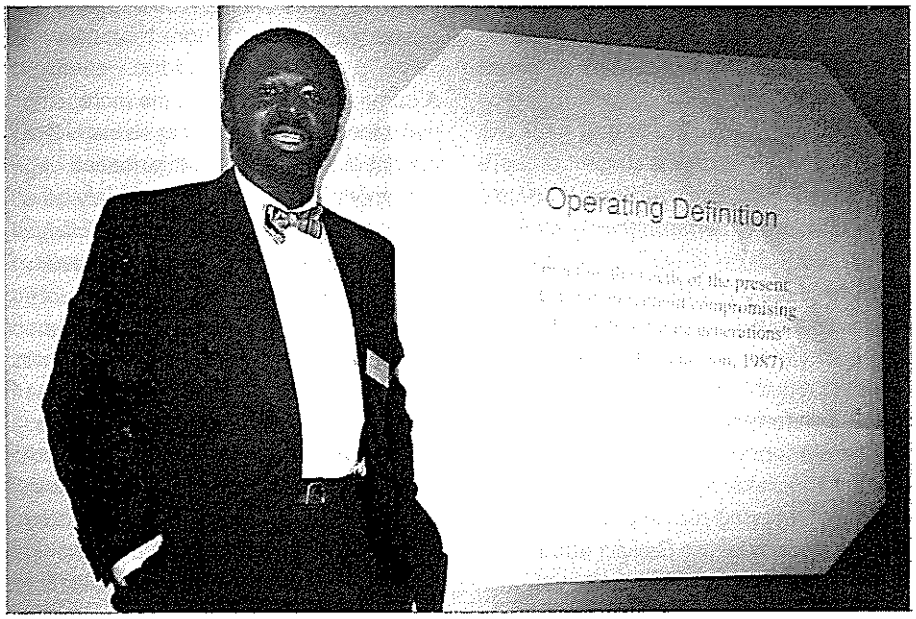
ing in the South or the developing world. Life for most people there is a constant struggle to survive. No amount of political colouring of the situation by both governments and external support agencies (ESAs) can convince the ordinary man in ever-growing slum conditions that "there is a pie in the sky". Basic needs (potable drinking water, adequate sanitation, going to school under a roof, primary health care and a guaranteed working environment) remain a luxury for many. A 5-10 percent unemployment rate in the developed countries can cause a government to fall. In a developing country, governments may get the mandate to stay in power for another term for a guarantee of a 50 percent official unemployment rate.

The gap between living standards and the demand for "development" is huge. With the advent of television and faster means of communication, people's desire for the fruits of development are growing. Electricity consumption, for example, is growing at 15-20 percent in most countries in the South. Meeting peoples' basic needs is beyond computation. Meeting demand for things they see on television screens or observe in urban enclaves of the elite, presents numerous challenges to the best development planners. Appropriate technology, which used to be the pillar of the 70s, is now taken with a grain of salt by most governments and people in the South.

Despite two world wars and devastating financial and social depressions in the West, the North has pulled out of social deprivation and has become, literally, a "Disneyland" in a matter of 50 years. Even more striking are the momentous breakthroughs in development by the countries that have become known as the Asian Tigers – who have successfully turned round from abject poverty to exploding consumer economies in a little over two decades. Nomadic societies have been transformed into miraculous "oases" in the deserts of Arabia thanks to "black gold".

These remarkable breakthroughs have had their costs. Some countries have had to re-plant all their forests; others have had to risk consuming themselves in crimes of amazing complexity and proportions or face nuclear disasters on a daily basis. One example is talk of "floating Chernobyls" in parts of the old Soviet empire. Many developing countries that have tried to follow the models of development unfolding before us in the last decades have not had much success. For example, in a craze to increase agricultural production through irrigation, the Aral Sea region is faced with one of the most acute environmental disasters in living memory. The Amazon forest has lost over 30% of its acreage in the last two decades, all in the name of economic growth. Mining towns in some parts of the world have left in their trails polluted water bodies and social enclaves of depression, all in the name of development. The great communist experiments in Eastern and Central Europe and other parts of the world reveal many more stories of development that were argueably neither good for people or the environment.

On balance, the world has become richer in total economic output but poorer in the distribution of wealth and economic well-being; poorer also thanks to environmental mismanagement and the wanton consumption of natural resources.



The Global Challenge

Population pressure and increasing poverty

According to the World Development Report of 1992 (World Bank), between 1990 and 2030, it is estimated that the world's population will grow by 3.7 billion. This implies food production will need to double, and industrial output and energy use will probably triple world-wide and increase fivefold in developing countries. This growth brings with it the risk of appalling environmental damage. It will affect adversely the one-third of the world's population that has no adequate sanitation and the 1.0 billion people without a safe water supply. Despite good progress over the past generation, more than 1.0 billion people still live in acute poverty and suffer grossly inadequate access to resources – education, health services, infrastructure, land and credit – required to give them a chance for a better life. Increased urbanisation and the collapse of some developing economies remain a threat to development responses.

Adverse climatic changes, pollution and loss of biodiversity

Risks from climatic natural disaster and diseases attributable to ozone depletion (an estimated 300,000 additional cases of skin cancer world-wide and 1.7 million cases of cataract) confront the world today. Sea-rise damage to coastal investments, regional changes in agriculture productivity and the disruption of the marine food chain have been reported in many regions of the world. Increasing desertification, air pollution and deaths resulting from water pollution and water scarcity, cross-border water resources disputes, declining fishery stocks and soil degradation are all on the rise.

Aids

As if the population pressures and damages to the natural environment arising from human endeavour were not enough to warn us of the global challenge, mankind has also received a rude awakening in recent years in the form of the AIDS plague. Even though the theory might seem disputable, many social scientists link the increase in HIV-infection to increasing urbanisation, poor access to education and information and increasing poverty. Of great concern to most developing countries is the threat to human resources. Experts predict that some countries in Africa and Asia could lose up to 20-40 percent of their active labour force to the AIDS virus if the plague is not controlled through targeted development efforts.

Prospects and Opportunities for the Future

The end of the Cold War – swords to plowshares

The end of the Cold War has brought in its wake disturbing developments: notably, the presence of only one super power with its increasing tendency to play the role of a raving global policeman, and the tragedy of the Balkan ethnic wars. On the positive side, however, the period also marks an important threshold in world history: a great potential for halting the stockpiling of armaments and instruments of mass destruction and diverting these resources into development actions. Experience so far might relegate this prospect to wishful thinking, but the potential exists. Corrections in distortions in the socio-economic situation in some Western economies could spill over into responsible investments and trading arrangements with the South. Advocacy and the demonstration of goodwill, as well as the accountable utilisation of self-generated resources in the South, will make this prospect possible.

Ascent of democratic systems – the will of the people will prevail

The collapse of the Soviet Union and the wave of democratisation all over the developing world is also a bright prospect for sustainable development. People and, more importantly, governments cannot hide behind ideological shelters to push absurd and impoverishing adventures in the name of the masses. The rule of law and appropriate frameworks for the expression of the will of the people to make or stop projects and programmes that fit or adversely impact their livelihood will flourish under this canopy. This will, of course, not come on a bed of roses, but through increased public awareness, stakeholder representation and mechanisms for aggressively effecting the will of the people.

The emergence of the Information Highway – one cannot hide anything any longer

A companion prospect to the increasing wave toward democratic systems is the advent of the so called "Information Highway". The world has suddenly become one global market place or village. It is now increasingly difficult for governments, donors and other development agencies to hide irresponsible actions. Local protests are quickly carried over in the media and cyberspace and aggressive responses initiated. There is more information and awareness today about the environment vis-à-vis development activities than a decade ago. Increasing transparency of most development agencies and calls for accountability to the tax payer are growing, but this prospect needs to be harnessed and made part of the development agenda.

Rio Summit (Agenda 21) – blueprint for action

The concept of sustainable development implies balancing environmental protection with the generation of increased opportunities for employment and improved livelihood. This principle was endorsed globally as part of the Rio Earth Summit. The Summit also produced guidelines on how to make development socially, economically and environmentally sustainable. What has come to be known as Agenda 21 explains that population, consumption and technology are the primary driving forces of environmental change. Agenda 21 lays out what needs to be done to reduce wasteful and inefficient consumption patterns in some parts of the world, while encouraging increased but sustainable development in others. It provides options for carefully managing natural resources – land, air, water, forests and the diversity of species – as well as pointers for reversing poverty.

Ato Brown with Delfa Uy and Chitra Chidambaram

Agenda 21 is still a document, but its global acceptance has been phenomenal. Most nations now have a framework for reforming their development processes. By adopting Agenda 21, the industrialised countries also recognised that they have a greater role in cleaning up the environment than poor countries, who produce relatively less pollution. The richer nations also promised more funding to help other nations develop in ways that have lower environmental impacts.

The Perspective of the World Bank and its Fourfold Agenda for Promoting Sustainable Development

I do not represent the World Bank, nor do I have a mandate to speak for the Bank, but gathering from the Bank publication *"World Without End – Economics, Environment and Sustainable Development"* (1993), a case is made for sustainable development which reads as follows: "a development path is sustainable if and only if the stock of overall capital assets remains constant or rises over time. The assets in question include manufactured capital (machines, roads, and factories), human capital (knowledge and skills), and environmental capital (forests, soil quality, and rangeland). To be on a sustainable development path, then, a nation must be living within its means, which, in this context, means not decreasing its over-

all capital assets. The proper measure of income corresponding to this idea of sustainability is widely accepted to be the amount that can be consumed without running the stock of capital down." In short, "you cannot have your cake and eat it, too".

The Bank has put forward in the last few years a number of major publications and hosted or collaborated in almost all major discussions on the subject of sustainable development or the absence of it. Among the central reasons put forward by the Bank for the lack of sustainable development are issues surrounding population growth and its impacts on the environment; policy failure – pricing of resources below private cost; market failure – social price distortions; planning failure – the negative impacts of socialist planning and the environment; property rights failure and its relation to renewable resources; and lastly, poverty, income distribution and their adverse effects on the environment. The Bank goes on in the publication *"World Development Report"* (1993) on the Environment to recommend the following "win-win" policy responses:

- removing subsidies that encourage the excessive use of fossil fuels, irrigation water, pesticides, and excessive logging
- clarifying rights to manage and own land, forests and fisheries
- accelerating provision of sanitation and clean water, education (especially for girls), family planning services, and agriculture extension services, credit, and research
- taking measures to empower, educate, and involve farmers, local communities, indigenous people and especially women so that they can make decisions and investments in their own long-term interests.

These policy responses have subsequently been translated into a four-fold environmental agenda enumerated below which is currently under implementation by the Vice-Presidency for Environmentally Sustainable Development in the Bank

- to help member countries set priorities, build institutions, and implement programmes for sound environmental stewardship
- to ensure that potential adverse environmental impacts from Bank-financed projects are addressed
- to help member countries build on the connections among poverty reduction, economic efficiency, and environmental protection
- to address global environmental challenges through participation in the Global Environmental Facility.

I will not go into the specifics of how the Bank intends to deal with the above operational agenda, but direct the reader to the Bank publication, *"Making Development Sustainable"* (1994) for details.

Some Options for the South and Development Agencies

Development should be managed as a business – not a bureaucracy

Development actions should be managed based on business principles, encompassing the notion of total value of all available resources, and not as a bureaucracy. Performance incentives must be changed to respond to or address the demands of beneficiaries of development actions. Every development action has a price. It is important that people, governments and development agencies face these costs responsibly: they must improve financial autonomy and financial discipline in the utilisation of resources, and exhibit greater accountability. The potential willingness to pay for services and benefits of development (even for the poor) is there to be tapped if people understand that the benefits are real and the costs are explained. It will also allow for rational choices and better resource consumption patterns.

Management at the lowest institutional level possible, and involving all stakeholders

Both causes of the past poor performance of development activities and the source of improved performance lie in the choices and incentives facing providers and beneficiaries. The closer the management is to the development action, the better the appreciation of the impacts (be they positive or negative) and therefore, the desire to do something about the situation. Decentralising decision-making and enhancing participation of all key stakeholders in the decision-making and management processes will generate better formulation of programmes for sustainable development and quicker feedback and resolution when things begin to go wrong. The lower the institutional level of action – the closer the decisions are to the farmers, urban dwellers, community leaders, indigenous people and the farther they are from the "armchair-capital-city-bureaucrats or -politicians", the better for development.

Absolute accountability and transparency

All the above options require goodwill, accountability and utmost transparency, plus different and innovative ways of managing resources and development processes. Governments can no longer spend their resources procuring arms, and then turn to the tax payers in the West to help deal with growing unemployment problems and homelessness, run lottery programmes to look after the poor of the society, or go to Paris every year to beg for the rescheduling of debts and more aid. The responsible use of development aid, appropriately targeted to programmes that enhance sustainability, should be the order for the future.

Conclusion

The struggle against poverty is the shared responsibility of all countries. Development strategies will have to deal with the combination of population growth, ecosystem health, technology, access to resources and the control of the processes for decision-making and management of the development agenda. Developing countries need to know their national population-carrying capacity. Putting humanity and its environment first will continue to be the challenge for this generation.

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Sustainable Urban Infrastructure Development in the Context of Need and Available Resources

Delfa M. Uy

Zusammenfassung

Insbesondere in Entwicklungsländern, wo finanzielle Mittel sehr beschränkt sind und der Bedarf an Infrastruktureinrichtungen sehr hoch ist, ist es wichtig, vorhandene Mittel optimal einzusetzen. In diesem Artikel wird der "Captial Investment Folio" Prozeß als Beispiel für einen neuen Ansatz zur effizienten Verteilung von Investitionsmitteln in der Planung von Infrastrukturmaßnahmen diskutiert.

Der Capital Investment Folio (CIF) Prozeß ist ein Planungssystem, das einen jährlichen Planungshorizont mit den nationalen Haushaltsplänen verknüpft. Der Prozeß beinhaltet vor allem drei Planungsbereiche:

- *den physischen Entwicklungsplan*
- *Sektorale Projekte, Pläne und Programme*
- *Abstimmung mit den zur Verfügung stehenden Ressourcen*

sowie deren Verknüpfung.

Das Capital Investment Folio (CIF), repräsentiert dann die finanzielle Umsetzbarkeit des physischen Entwicklungsplans. Er beinhaltet die öffentlichen Infrastrukturprojekte, die zur Umsetzung der Regierungsziele notwendig sind.

Die Stärke dieses Instruments erweist sich insbesondere durch die inter-sektoralen Verknüpfungen.

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Introduction

Typical of any developing country is the project approach to development. In the process, a formidable array of institutional, technical and administrative problems is encountered. These substantially compromise the effectiveness of resources put into planning and implementing infrastructure projects. Thus, the resources put into planning are not well reflected by what is implemented, and what is implemented often does not appear to reflect the policy objectives of the government.

Whatever the drawback, this infrastructure project-based form of development appears set to remain for the foreseeable future, and the main prospects for progress appear to focus on changing the existing planning systems by which infrastructure projects are developed and implemented.

Compounding these problems is the economic crisis facing every developing country, placing them in a situation of surmounting demand for basic infrastructure services vis-à-vis very limited available resources and, therefore, requiring them to seriously re-examine priorities against an uncertain future. Given this situation, the need for a new approach to planning and management of infrastructure development – one which is relevant to a developing city environment – could hardly be greater.

To meet this challenge, an innovative approach to urban resource management, known as the Capital Investment Folio Process (CIF), was conceived in Metropolitan Manila[1]. The World Bank recognized the need for a novel approach to the planning system in Metro Manila – for a more efficient resource allocation and sustainable infrastructure development. It responded to this need by funding the technical assistance for the development of the CIF Process from 1982 through 1985. The United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP) has also shown its recognition of the potentials of the process for application in intermediate cities.

In a nutshell, the CIF Process is a planning system involving an annual cycle of activities linked to the national budget system. Its major output is a 5-year rolling investment program of infrastructure projects which are consistent with expected available investment funds and are a clear reflection of the government's goals and objectives.

The Process focuses on three major components of the planning process

- the Physical Development Plan,
- Sectoral Projects, Plans and Programs, and
- Available Financial Resources

and on their inter-linkages.

The output; i.e., the Capital Investment Folio (CIF), becomes the financial representation of the Physical Development Plan, being the group of high priority public-sector infrastructure projects most likely to contribute to the government's objectives.

Albeit the application of the CIF Process was short-lived due to vital institutional factors, it would be worthwhile to introduce it to other developing cities, particularly those with conditions similar to Metro Manila. The Philippine Department of the Interior and Local Government (DILG) has very recently, through a technical assistance grant from the United States Aid for Infrastructure

Development (USAID), instituted guidelines for the adoption of a CIF-based planning and programming of infrastructure projects in intermediate cities in the country.

Sustainable urban infrastructure development in the context of surmounting needs and limited available resources can be achieved through the CIF Process, particularly through its inter-sectoral mechanism. Much can be learned from the few experiments which were undertaken in Metro Manila. Moreover, the Metro Manila experience can perhaps be used as a springboard towards eventual solution to the challenging problems facing infrastructure development in other cities. It is in this light that this paper was prepared.

This paper:
- *briefly describes infrastructure development in Metro Manila, with which many developing cities can identify;*
- *cites three major problems in the preparation and implementation of infrastructure projects which have contributed to the trend of infrastructure development in Metro Manila and paved the way for the evolution of the CIF Process;*
- *presents the CIF Process and its main features;*
- *sets out the benefits and lessons which have emerged; and*
- *discusses possible application of the Process in other developing cities.*

Metro Manila Infrastructure Development

Background

With the huge backlog in the provision of basic infrastructure services in Metro Manila, infrastructure development plays a more "reactive" than "active" role, best described as disjointed. In the absence of a coherent physical framework and investment strategy, infrastructure development has been highly sectoral, with related sectors often failing to complement each other. It is fragmented in terms of timing, location and design. It is capital outlay-intensive and is deficient in the provisions for operation and maintenance, both in terms of financial and human resources.

There have been situations in Metro Manila wherein a locality became over-saturated with infrastructure facilities, while another suffered a complete absence of basic infrastructure services. In some cases the services provided by infrastructure facilities were either inadequate or over-adequate for use during the period for which they were designed.

Except for a few projects being built under the Build, Operate and Transfer (BOT) scheme, infrastructure development in Metro Manila is still largely financed by the government, with the major ones under internationally contracted loans.

Major Problems

Three major problems have been identified as causing such trends in infrastructure development in Metro Manila. These problems, all of which are rooted in the system within which infrastructure projects are planned and implemented, are:
- inadequacies in planning methods,
- weaknesses in resource management and
- institutional fragmentation.

Inadequacies in planning are manifested by the following:
- absence or lack of inter-sectoral coordination over the location, timing and standard of, and synergism in infrastructure development, thus resulting in short-term impacts, interim relief of problems and/or "white elephant" projects;
- lack of participatory planning or insufficient involvement of local governments/authorities concerned, leading to problems during implementation, hand-over for operation and maintenance, or beneficiary acceptance;
- lack of planning under alternative futures, reflecting high and unrealistic levels of demands, and causing the implementation of inappropriate projects or projects which lack robustness and flexibility to face changing scenarios of the future;
- no common assumptions and procedures in the identification and evaluation of projects.

A major weakness in the area of resource management is the inability to

predict disbursement decisions which, in the end, decide which and how quickly projects proceed. This inability makes forward planning and inter-sectoral coordination extremely difficult. Problems also arise when:
- implementing agencies find it difficult to forecast resource requirements when faced with high inflation, successive devaluations, and contractors who are no longer able to complete projects profitably;
- government is unable to provide counterpart funds for internationally contracted loans;
- there is weak linkage between the agencies involved in planning and disbursement functions; or
- there is political intervention on disbursement.

As a result, it has become a common practice to give implementing agencies notices or authorities to proceed with projects, but only to find out later that actual disbursements can only meet a fraction of those committed. This leads to delay of project completion in many cases. In some cases, project implementation is deferred.

Institutional fragmentation is evidenced by the long lists of projects within each sector. The various implementing agencies (mostly central government agencies and their corporations) independently formulate projects and take different policy initiatives as new needs are perceived and as new agencies are formed. Most of the time too, these agencies' mandates are so loosely defined that their roles become diffused. As a result, the programs within a single sector may in part duplicate each other, and yet, when taken together, fail to meet stated objectives. In the process of independently identifying and formulat-

ing plans and programs, new projects continue to be introduced into the long list. No coherent program of strategy for achieving governmental objectives exists.

The Capital Investment Folio (CIF) Process

Definitions and Objectives

The Capital Investment Folio, hereinafter referred to as the CIF or the Folio, is primarily a catalogue of on-going and proposed public sector capital investments, ranked according to implementation priorities after being evaluated against the background of the government's planning objectives. In Metro Manila, the Folio had a five-year time frame rolled annually.

The Capital Investment Folio Process, hereinafter referred to as the Process or the CIF Process, is the iterative process utilized by a multi-sectoral institution in formulating and rolling the Folio annually. The Process endeavors to guide and influence infrastructure development in order to optimize capital investments, thereby reaping the most benefits from the greatest number of constituents out of limited resources. It is intended to:

- provide a common base from which future projects of different agencies can be generated and against which the projects will be reviewed to ensure their compatibility;
- encourage exchanges of ideas and information between agencies; and
- confront the mismatch between the demands for and the availability of resources.

In Metro Manila, all the objectives were achieved because the features of the process, which made it distinct from the conventional planning approach, currently applied. Through its unique institutional system, a key feature, the Process attempts to be one within which all infrastructure implementing agencies can confidently identify individual projects, work up projects, carry out appropriate evaluation, and implement projects.

Detailing the Process

Figure 1 illustrates the CIF Process. It shows that:

- the Process involves the formulation of a five-year program of government investment in infrastructure projects, the first year being the annual capital budget;
- the effective functioning of the Process depends upon three closely related inputs, the Regional Development Framework Plan, the estimates of available resources, and the agencies' projects and programs;
- ongoing or committed projects are not automatically included in the five-year program, depending on the status review;
- monitoring and evaluation of project performance are essential inputs into the status review of ongoing projects and the revision of the agencies' plans and programs;
- deliberations provide the venue for an inter-agency dialogue.

Essential Inputs into the Process

The inter-linkages of the three essential inputs into the Process are shown in Figure 2.

The Regional Development Framework Plan (RDFP), representing the 'official' government policy on the growth of the metropolis, shall be used by the agencies as the common basis for the identification and preparation of infrastructure projects. For it to serve as an effective input, it should clearly quantify and locate problems, emphasize their linkages and potential courses of action. It should also:

- provide a clear perspective on the future, a set of socio-economic and development objectives, and a common data base to be used by all national, metropolitan and local government units/agencies in the preparation of projects and programs;
- provide a clear context for the preparation of Local Development Plans for the cities and municipalities comprising Metro Manila;

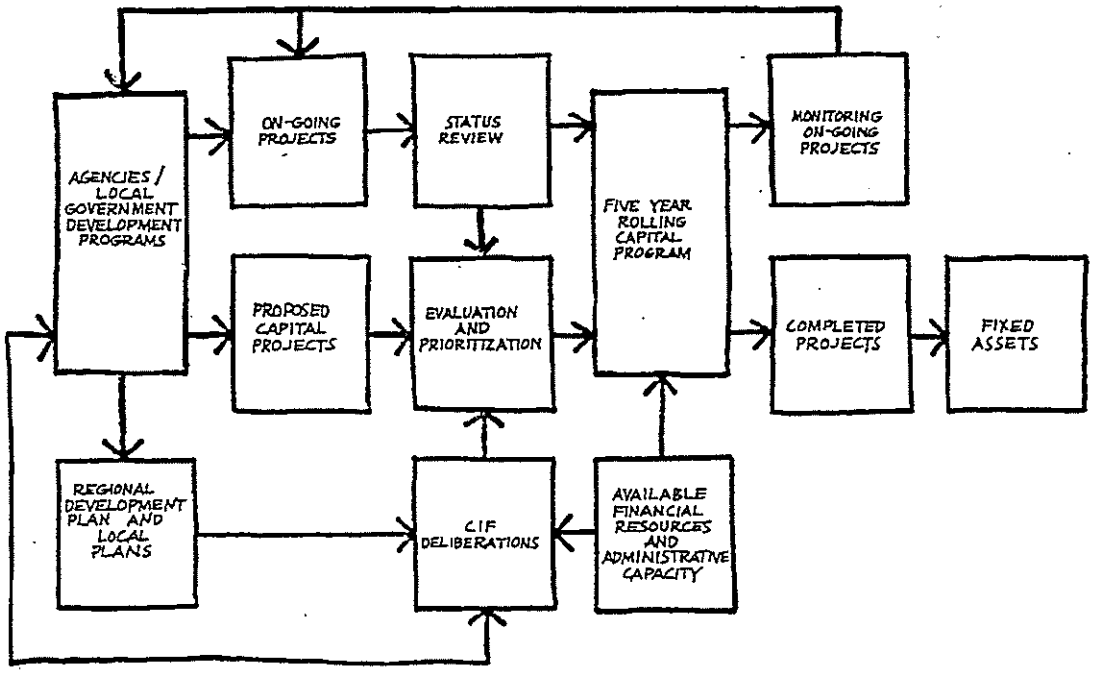

Figure 1: The Capital Investment Folio Process (CIF)

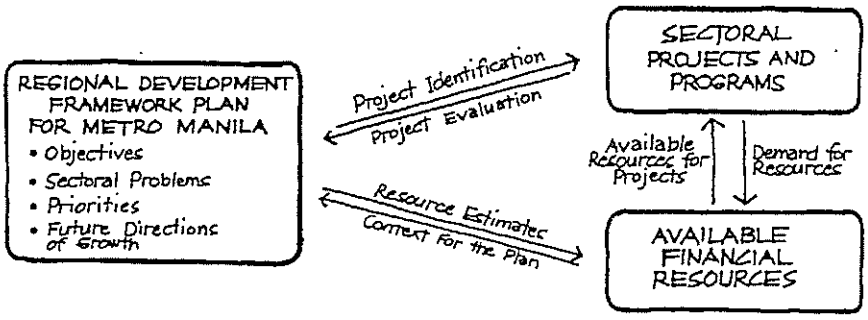

Figure 2: Inter-linkages of inputs into the CIF Process

- provide a clear picture of ongoing and proposed projects of all agencies for purposes of not only improving coordination of implementation and preparation of future projects, but also highlighting projects which conflict with the RDFP;
- influence the private sector in the location of investments; and
- highlight any special studies, initiatives, actions that may be required.

Available Resources

An estimation of available resources is established to provide a guide to, rather than to be a precise determinant of, the scale of the capital investment programmed. This means that with the composition of the Folio being well within the context of possible available financial resources, a realistic infrastructure program would more likely be achieved. During the earlier years of the Folio, it was normal to observe a large slice of the available resources being committed to ongoing projects, and only during the later years would there be sufficient resources to introduce new ones.

In the Philippines, where there is no direct basis for the estimation of available resources, the CIF Team estimated the funds for public sector projects from the revenues of central and local government and government corporations and from borrowings. The Team also took into consideration the expected future state of the economy and government policies for allocating available resources.

Agencies' Projects and Programs

The availability of good information about projects is critical for a proper evaluation. The Metro Manila experience has proved it difficult and time consuming to identify agencies' plans, projects and programs. The reasons are many, but perhaps the most important factor was the time it took the CIF Team to build up personal links with informed officials within the agencies. It was also important for the CIF Team to make decisions regarding data collection, use and storage to take off with gathering information about agencies' programs. The interdependencies of projects also had to be understood for better evaluation.

Sectoral Strategies

Appropriate sectoral strategies, combination of policy measures, investments and institutional measures, are necessary prior to evaluation. Given a clear understanding of the rationale underlying these sectoral strategies, the evaluation of projects becomes relatively straightforward. Conversely, evaluation in the absence of the framework provided by these strategies might produce misleading results. Since some of the sectors are inter-related, these have to be grouped and analyzed together. For example, the CIF Team grouped the sectors as follows:

- Water-related sectors: water supply, sewerage and sanitation, drainage and flood control, solid waste
- Transport: highways and transportation
- Social Infrastructure: shelter, health, education, livelihood.

The inter-relationships between the sectors in each group were clarified using algorithms such as that shown in Figure 3 for water-related sectors. The algorithm shown was applied when strategies or actions of any one water-related sector were considered. This revealed that complementary actions in other sectors were necessary. For example, Figure 3 shows that:

- where water is supplied, a sanitary wastewater disposal system is required;
- where wastewater disposal is by septic tank treatment and a combined drainage system conveying both surface water and wastewater, unsanitary conditions result unless

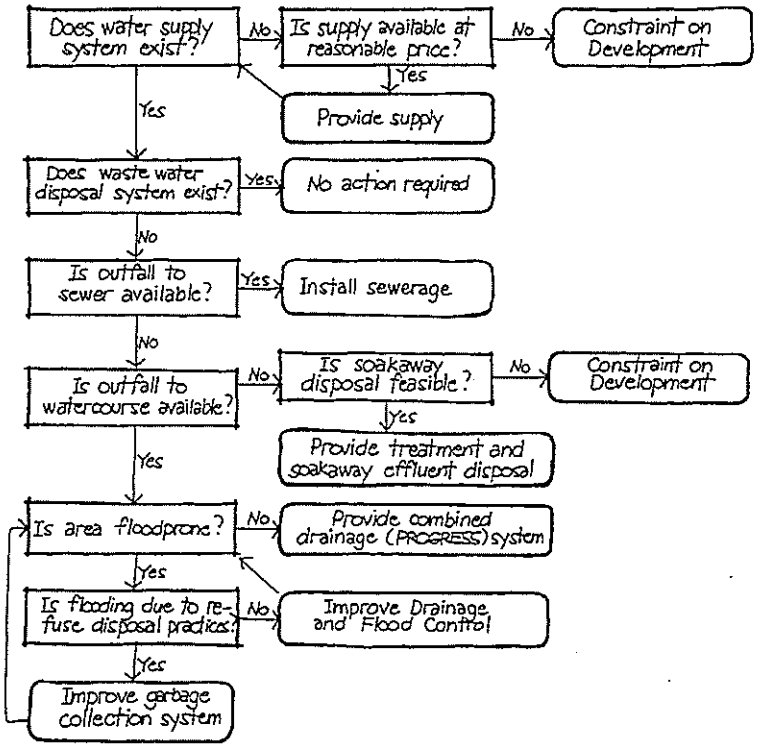

Figure 3: Interaction between water related sectors

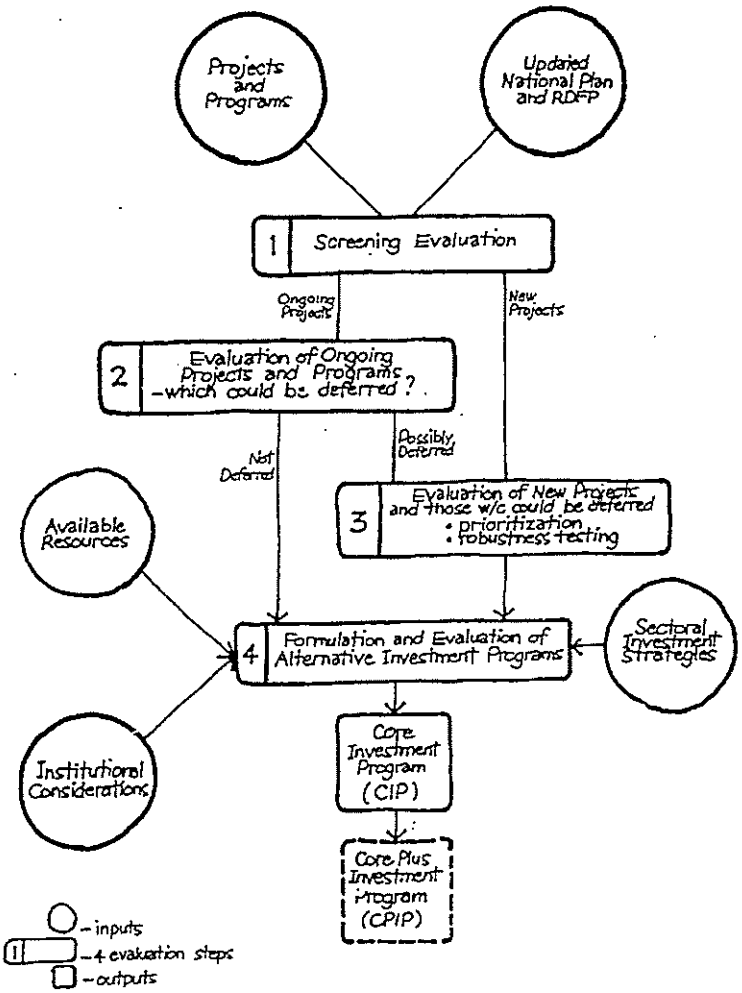

Figure 4: Evaluation methodology

flooding is avoided; and
- where flooding is caused by refuse disposal practices, flooding will continue to occur unless garbage collection is improved.

In this manner, strategies for more meaningful investment and sustainable infrastructure development could be established.

This stage in the CIF Process is particularly positive and may be contrasted to the more reactive evaluation stage. It allows existing policy options to be reviewed and new ones to be discussed with the agencies before attempting to evaluate investment projects. It enables areas for possible release of public sector resources through private sector intervention to be identified and allows gaps in sectoral programs to be identified.

Moreover, this stage of the process involves the formulation of sectoral strategies in discussion with the agencies, thereby ensuring that the evaluation will produce tenable results. It is not difficult to imagine situations where the evaluation would reject all projects in one sector (perhaps because all are of high cost), leaving a vacuum and no tenable strategy to sell to agencies and the public. Clearly, the evaluation would achieve (and deserve) little respect unless it could be shown that it would result in acceptable strategies.

Evaluation Methodology

The tight analytical nature of the evaluation procedure for prioritization is another distinctive feature of the Process. As shown in Figure 4, it is a four-step procedure, developed from the methodology applied by the National Economic Development Authority (NEDA), the country's central planning agency.

Step 1 is an initial screening evaluation to produce a group of projects which could be realistically implemented within the specified five-year period and which are potentially beneficial. As illustrated in Figure 5, each project is evaluated against 5 criteria which include feasibility (given funding), compatibility with the RDFP, impact on equity, economic viability, and financial viability.

Step 2 is an evaluation of all on-going projects[2] to establish which should be implemented more or less as planned, and which should be cut back or deferred. No project is considered to be so firmly committed that its implementation is inevitable, considering that government political commitments could be re-interpreted, and agreements with donor agencies, in the last resort, could always be realigned. All on-going projects are evaluated against four questions:

- Is expenditure by the end of the current year less than 20% of the total project cost?
- Is the project divisible into useful components and is further expenditure low priority?
- Can the project be scaled down by deleting/re-designing some parts without appreciably reducing benefits?
- Can implementation be stretched without appreciably increasing costs and reducing benefits?

If the answer to any of these is "yes", then it is concluded that the project be deferred or reduced. If the answer to all these questions is "no", then it is concluded that the project should go ahead without deferment. Additionally, if the project passes all criteria but there are institutional grounds that could lead to its deferment, it is considered a suitable candidate for deferment.

Step 3 is a prioritization of deferred ongoing projects together with all new projects, using a point scoring multi-criteria form of evaluation to roughly separate the 'first', from the 'second' and 'third' priority projects. Projects are scored on a scale 0-10 against a set of criteria including – regional development impact, importance of project (extent to which it could solve problems identified in the RDFP, general political support), impact on low income groups, spatial consistency with the development strategy, budgetary requirement, debt service requirement, economic profitability, economic viability, robustness[3] and flexibility[4] under 5 alternative scenarios or possible future path of development as shown in Figure 6.

Substantial differences between scores are taken to separate 'first' from 'second' and 'third' priority ones; and to concentrate attention on marginal projects. Examining the performances or scores of projects under different scenarios establishes the robustness or risk of investment in individual projects.

Step 4 was the establishment of the Core Investment Program (CIP), the "bottom line" set of projects which clearly tackled the key problem over the coming years. It results from the inputs of Steps 1, 2 and 3, together with an understanding of the following:

- the likely "low" resource availability,
- the likely ability of local governments to afford projects,
- institutional considerations which should influence investment priorities, such as the likely ability of implementing agencies to undertake the project/s without significant further strengthening, or whether totally foregoing the project would undermine the strength of the organization to the extent that it could not be revived in the event of an economic recovery.

Alternative CIPs were developed, based upon different assumptions about government's level of commitment to ongoing projects and the mechanisms of funding local government projects. This allowed the 'preferred' CIP to be identified together with the necessary actions.

A further development of the methodology would be the formulation of the Core Plus Investment Program. That would comprise all projects which were appropriate, given a high level of resource availability.

Institutional Arrangements

Albeit the various line agencies and government units concerned in Metro Manila agreed that the CIF Process played a vital role in the national economic planning framework, a clear institutional set-up was still required. From the time the Process was conceived through its development, it was not spared institutional problems; hence, the institutional set-up by which the Folio was formulated had to undergo continued development. It took off from the very promising background of inter-agency contact at the senior official level, relying mainly on persuasion for its effectiveness, instead of fundamentally changing the national resource allocation system.

Figure 7 illustrates the improved institutional structure in Metro Manila as of 1984.

The Policy Coordinating Council, the policy-making body responsible for deciding on major CIF and RDFP issues emanating from the Executive Committee, was to be composed of officials from the principal planning and resource allocation agencies. An Advisory Council, its representation to be drawn from political leaders, notably the Mayors and legislators, was to be attached to the Policy Coordinating Council to give advice and feedback on the policies and projects being implemented and proposed.

The Executive Committee was to be comprised of Assistant Heads of key infrastructure implementing agencies and Directors of planning and resource allocation offices. This Committee was to serve as a forum for discussion of issues raised by the Technical Secretariat in areas such as investment programming and prioritization of projects, policy, plan and program coordination, and resolution of major issues related to project implementation. The purpose of such discussions would be to generate inter-agency consensus on the basis of informed analysis of the Technical Secretariat.

The Technical Secretariat was to provide staff support and to submit the CIF Annual Report on individual projects and sectoral issues – according to an agreed program of the Executive Committee. This was to be established within the office responsible for the production of the CIF and, when necessary, to be supported or strengthened by seconded staff from key infrastructure implementing agencies.

The institutional system by which the Folio is formulated is a key feature of the CIF Process. It is intended to be one within which all project implementing agencies could confidently identify individual projects and programs, work up projects and carry out the appropriate evaluation and implementing projects. It should achieve influence through appropriate linkages and through high quality advice. In the Metro Manila case, it was

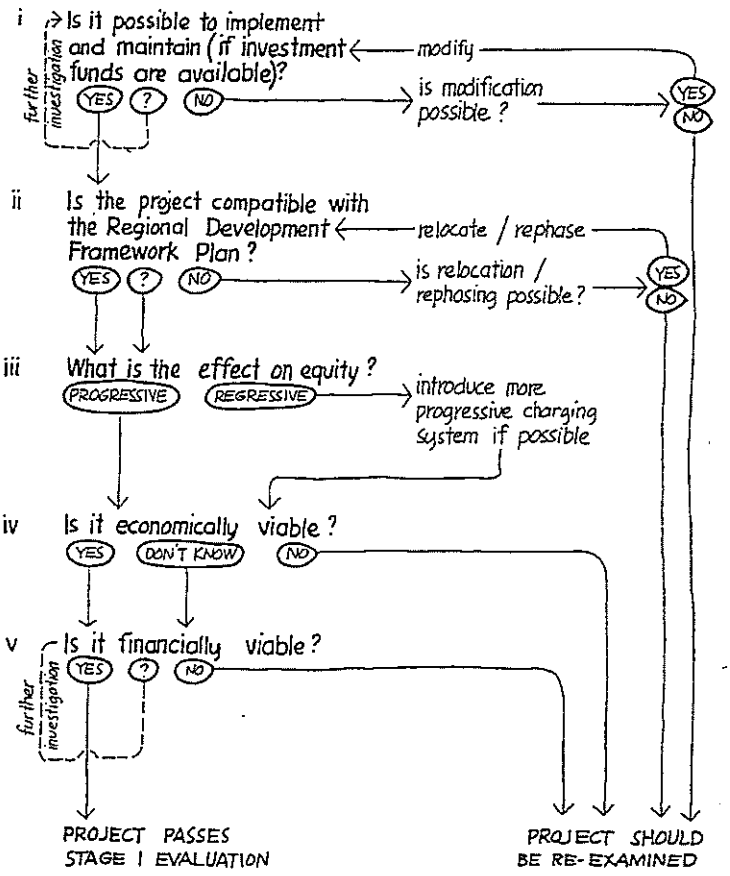

Figure 5: Stage 1 evaluation

CRITERION	SCENARIO A	B	C	D	E
1. Socio-political • regl dev't. impact • importance – political – problems • Impact on low-income • Spatial consistency	High Growth (planned)	Medium Growth - NEDA	Medium Growth - MMA	Low Growth (unplanned)	Low Growth (peace & order)
2. budgetary requirement					
3. debt serv. requirement					
4. economic profitability • rate of return • robustness & flexibility					

Figure 6: Scenarios for stage 3 evaluation

the Metro Manila Authority (MMA), through its planning office, that was primarily responsible for the preparation of the Folio (see Figure 7).

Lessons from the CIF Exercise

The CIF fell short of full institutionalization into national resource allocation. For ten years or so now, a Metro Manila CIF exercise has not been undertaken, owing to vital factors such as the following:

- institutional instability of the Metro Manila Authority (MMA)[5], within which is the planning office for Metro Manila responsible for the preparation of the CIF;
- political events such as the 1986 Revolution, which ended the twenty years or so of Marcos' regime and ushered in a new set of officials in major planning, resource allocation and infrastructure implementing agencies of government; and
- the retirement, resignation and long-term study leave of the main players of the MMA-CIF Core Team, including technical staff of key infrastructure agencies who had been trained and had actively participated in the formulation of the CIF.

Very recently, a CIF-based planning and programming system has been introduced to the local government units for application. Guidelines were prepared and local planning officers trained through a technical assistance grant from the United States Aid for Infrastructure Development (USAID). Presently, moves are being initiated to revive and further develop the Metro Manila CIF Process for institutionalization through another World Bank Technical Assistance Grant.

The few CIF exercises mainly proved that major progress towards the establishment of a practical and rational system for planning and implementing infrastructure development for overall urban planning and administration in the metropolis could be achieved. The system was practical in that it was progressively working and gaining acceptance. It was rational because it addressed the key issues of likely available resources, development objectives in a very uncertain future, and how to build up institutions. It was a system that was operated annually in a cycle by a team of trained professionals.

The Metro Manila CIF experience provided a new perspective on forward planning for countries with similar circumstances. It addressed the key issues of 'affordability' and 'uncertainty'. It effectively confronted the challenge of planning for infrastructure development in the context of soaring needs and depleting resources.

The influence of the CIF Process or this form of planning should develop progressively over the years. Rapid progress in the influence of the Process in Metro Manila which was experienced in 1984 due to the unexpected 'window of opportunity'[6], has proven that in order to attain influence, the ability to respond quickly to opportunities was of essence. This, though, demanded a body of highly motivated and matured professionals to operate the system. Important considerations are:

- the process should be progressively used when agencies first identify projects;
- a core of dedicated professionals committed to the process must be trained and developed.

It would be misleading to conclude that the process is as effective as it might be. It has not yet been integrated into the national resource allocation process and has not been fully accepted by the national government agencies. The rather slow incorporation of the Process or of any such new ideas into the existing system is partly due to the inability of some of the existing institutions to fully appreciate the approach. The involvement of all government agencies in "hands-on" training, seminars and workshops on the process should be a regular component of the CIF exercise.

The following are some of the specific lessons learned during the few CIF exercises in Metro Manila :

- The assembly of physical and financial information on projects and programs proved to be no straightforward matter. Agencies either had no medium-term investment plans, used different time frames, had expenditure based on varying rates of domestic inflation, or were using different assumptions on anticipated changes in the foreign exchange rate.
- Estimation of the available resources was difficult. In the absence of regional investment statistics on which estimates of available resources could be directly based, the CIF Team made use of the GNP fore-

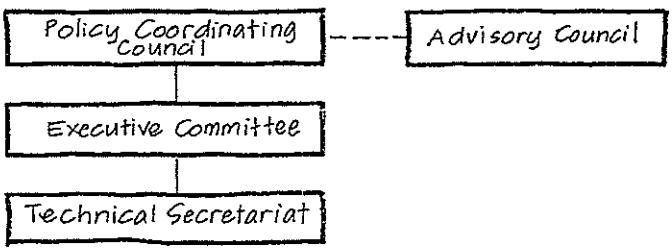

Figure 7: Improved CIF institutional structure

casts; prescriptions for a cut in government budgetary expenditure as a proportion of GNP; the requirement for government-owned and -controlled corporations to increase their internally generated resources; the proposal to increase the expenditure on maintenance implying a substantial cut in national investment capital; and statements of the government's intent to reduce inequities in regional balance and give a new priority to agricultural production. The future performance of the Philippine economy then had to also be reflected in the resource estimates.

- Step 3 of the evaluation process proved to be very powerful. Its relevance was apparent in view of the profound uncertainty then facing the Philippines. It followed directly that new types of projects were needed: those which were robust under a wide range of future scenarios, and projects which were flexible and could match incremental expenditures with the realization of benefits/revenues. Since these were very new ideas in Metro Manila, the evaluation provided the vehicle to demonstrate their relevance in a practical setting.
- Establishing and maintaining good contact and close links with, and gaining the confidence and respect of, key people in the various agencies involved had been very useful in all aspects of the CIF Process; i.e., in gaining acceptance of the RDFF; in obtaining good information about agencies' projects and programs; in estimating the likely available resources; and in the evaluation and inter-agency discussions.

The CIF Process evolved over a number of years, and can and should develop further. Future developments of the CIF should be pursued in:

- the establishment of a good database for improved project identification and evaluation;
- more intensive training and a continuous institutional building program; and
- extending the scope of the Process to influence operation and maintenance components of infrastructure projects.

It is important to see the future development of the Process in a step-by-step manner, building on the latest achievements. Each successive stage of development requires inquiry and testing in order to determine both what is appropriate and practical, and what areas of further examination require ongoing attention.

CIF in other Developing Cities

Many aspects of the process are valid for any large developing city. The development of the CIF Process in Metro Manila involved a substantial investment of time and money. A central question facing developing cities is how the returns from this type of investment compare to those of conventional project planning. In Metro Manila, the answer was clear: the former investment appeared in many ways a prerequisite for the latter. The achievements of conventional project planning are so bad in most developing cities that it would be surprising if a similar conclusion were not reached in many.

Each step towards rationality in resource allocation was the result of personal patronage and influence of government officers, who were involved in initiating the process and who were held responsible for a positive cooperative approach to urban planning and for overall infrastructure development. A developing country which possesses a strong and genuine desire to invest wisely to improve the conditions of its people offers good ground for a successful CIF exercise.

The aspects of the process likely to be widely applicable are the following:

- relating the demand for resources to likely available resources and to government objectives;
- the formulation of sectoral and intersectoral strategies as a preliminary step to evaluation, and
- the system of evaluation and the mechanism for incorporating uncertainty in the planning process.

The bad experiences of conventional project planning have created in many developing cities a growing awareness of the potentials of new approaches to urban planning and management. Moreover, much can be learned from the few innovative approaches which have been implemented or experimented with, and of which the Metro Manila CIF exercise is one. It is one experience which should offer hope to other developing cities with similar circumstances, problems, constraints and traditions.

Footnotes

1 Metropolitan Manila or Metro Manila, comprising 7 cities and 10 municipalities, is the National Capital Region of the Philippines. It has a total land area of 636 sq.km. (or 0.2% of country's total land area), an estimated total population of nearly 9 million in 1995 (or 13% of the country's estimated 1995 population), which is growing at an average annual rate of approximately 2.13% (which is some 5.6% higher than the national average).

2 Ongoing projects are defined as those where construction is underway or where loans are signed and active.

3 Probability of ERR exceeding discount rate.

4 The extent to which incremental benefits/revenues are matched by incremental expenditures; i.e., the extent to which a project could become a "white elephant" in the event of a cutback in funding.

5 Metro Manila Commission from 1975 to 1989 was headed by an 'appointed' Governor of Metro Manila, the then First Lady Imelda Marcos. From 1990 to 1994, as Metro Manila Authority, it was headed by a Chairman, who was elected by the members of the Metro Manila Council from among the 17 Mayors of Metro Manila. The Metro Manila Council comprised the Mayors themselves and a few key officials of major government agencies. He had a term of at least 6 and at most 12 months, after which another Chairman would be chosen. The present Metro Manila Development Authority, which replaces MMA, is presently in the transition stage and is being headed by the last Chairman of the MMA. It is proposed that the MMDA be headed by an 'elected' Governor for Metro Manila. An 'elected' Governor would definitely be more powerful than an 'appointed' one over the 'elected' Mayors of the cities/municipalities comprising Metro Manila.

6 In 1984, a 'window of opportunity' opened for the CIF Process to exert considerably more influence than before for two main reasons: a) The impact of the rapidly worsening economic crisis provided a unique opportunity to influence decision makers. Large and repeated cuts in investment programs caused all those concerned to realize that some projects were unlikely to be funded for many years, and that some long-nurtured projects would become irrelevant. And, government was confronted with the question of how it should respond to the situation. b) The World Bank was also at that time finalizing three major loans in the shelter, urban transport and drainage/environmental improvement sectors. For government to be able to influence the size and project composition of these loans, a 5-year investment strategy had to be formulated for the metropolis with the objective of achieving broad consensus both within the government and the IBRD.

Infrastructure Funding in the Private Sector for Sustainable Development

Syed Amir Raza

Zusammenfassung

Obwohl jedes Jahr beträchtliche Summen für den Aufbau der Infrastruktur in Pakistan ausgegeben werden, sind die Ergebnisse unbefriedigend. Der Autor macht dafür vor allem das Mismanagement der öffentlichen Verwaltung verantwortlich, welches sich in Ineffizienz und Korruption manifestiert. Die Ursachen dafür sieht der Autor insbesondere in der fehlenden Marktorientierung. Er plädiert daher für eine weitgehende Privatisierung bei Erstellung und Betrieb der technischen und sozialen Infrastrukturen. Die vorgeschlagenen Maßnahmen zur Privatisierung werden durch einen Katalog von Kontrollmechanismen ergänzt, der sich auch an die Adresse der (Geld-)geberinstitutionen wendet.

Abstract

Millions of dollars are being spent each year on the development of infrastructures in Pakistan. Nevertheless, mainly due to the mismanagement of the infrastructure departments of the government, the expected goals of development are not being achieved. Mismanagement of government departments is the result of the absence of market-based economic factors. To effectively run the infrastructure on market economy principles, it must be privately constructed and operated. However, there are also some limitations to the efficiency of privatization which should be taken into account in the privatization process in order to avoid negative effects.

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Introduction

Pakistan has an estimated population of 126 million and an area of 0.8 million km^2. Roughly two to three billion US dollars, including foreign aid of around 1 billion dollars, are being spent annually on the physical infrastructure in Pakistan.

Despite fairly heavy expenditures, the general condition of development, especially that of physical infrastructure in the country, is extremely backward. There are many causes behind this backwardness. These include a high population growth rate of more than 3%, a low literacy rate of less than 30%, and an extremely high percentage of poor people; i.e., about 83%.

All these factors are interconnected, thus creating a vicious circle. But the most important causes are mismanagement, inefficiency and corruption of the government and government departments.

Mismanagement of Government Departments

The following points emphasize the different aspects of governmental mismanagement at different levels of project achievement, along with their specific effects.

Mismanagement during the planning stage

Infrastructures are planned by the planning divisions of the respective government departments in Pakistan, sometimes supported by private consultants for the planning studies. The following types of mismanagement can be observed during the planning stage:

(a) Political leaders and influential bureaucrats sometimes interfere in the planning process of infrastructure projects for their own personal benefit. For example, planning of a road or power supply is influenced by politically powerful people to increase the value of their property. Or they use their influence to prevent their property from being acquired for the infrastructure.

As a result, infrastructures are sometimes planned and constructed in areas where there is little or no need for them while some essential infrastructure facilities cannot be constructed because of the opposition of some political elites. This means a non-judicious use of meager national resources.

(b) Bribes are taken by the government officials for the award of contracts to consultancy services, resulting in overly high costs of consultancy services.

(c) Theft of public funds and resources occurs in the process of investigation works, purchases, etc., through bogus receipts. Consequently, the quality of investigation work is badly affected and public funds wasted.

Mismanagement during construction stage

The construction of physical infrastructure is generally performed by private contractors under the supervision of the government departments concerned which also act as the client. In bigger projects, consultants are hired for supervision, and the departments act as clients and coordinators. During this stage, severe mismanagement of the following types is observed:

(a) Kick-backs and bribes during the awarding of construction contracts for physical infrastructures are a common practice in Pakistan. Sometimes bids are secretly opened to a favoured contractor to give him the opportunity to offer a bid lower than the lowest. Sometimes the tenders are even not advertised and the contracts are secretly awarded, with officials taking heavy bribes. All these factors result in higher project costs.

(b) Each time funds are released during construction, contractors once again pay government department officials heavy bribes to ignore substandard work.

This results in a short life of infrastructures: roads in Pakistan usually deteriorate seriously after two or three years; buildings show big cracks and other serious problems after some years; and every infrastructure facility requires a lot of maintenance.

Mismanagement during operation and maintenance stage

The government departments concerned are generally responsible for operation and maintenance of the infrastructure in Pakistan. The following types of mismanagement are observed during operation and maintenance of the infrastructures:

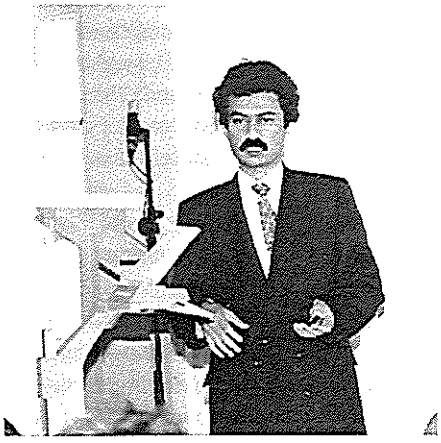
(a) Bribes are taken for the use of infrastructure facilities. A common man in Pakistan cannot get a power connection, a natural gas connection, or a water supply connection without giving a bribe to the government officials concerned.

(b) Mismanagement during maintenance takes place on the same level as during construction. Sometimes unnecessary maintenance work is created to make money. Sometimes funds for maintenance work are paid out whilst the actual work remains undone.

(c) Some government officials take monthly bribes from consumers of public infrastructures for exempting them from paying the actual monthly dues; for example, for power supply. In order to make up for the lack in revenue, they overcharge the honest electricity consumers.

(d) Public funds are also stolen by government officials through commissions in the regular purchases by the department.

(e) Since the objective of the government departments is not profit-making, their officials are not careful about the timely completion of official tasks. This slack approach to official duties also affects the quality of infrastructural facilities badly.



All these types of mismanagement result in poor infrastructure quality:

- Frequent power supply cuts – whereby power is available to only 40% of the population;
- Low water pressure in the water supply system, with water not conforming to health standards. Moreover, water supply is available to only 38% of the population;
- Faulty sewerage systems – which are available to only 16% of the population – without any treatment plant;
- Most of the roads have potholes and are usually under maintenance or reconstruction;
- Poor road drainage, thus pools of water for days after rainfall;
- Traffic jams on the roads;
- Trains rarely reach their stations on schedule;
- Mismanagement of solid waste disposal – waste rots on the streets and road sides;
- Dirty hospitals with dirty beds;
- Over-crowded educational institutions with lack of sufficient educational facilities.
- Totally non-functional public transport.

The quality of infrastructure facilities is good only for influential and politically powerful people or for those who can pay heavy bribes.

Indirect Effects of Governmental Mismanagement

(a) Due to corruption, many posts in the infrastructure departments become extremely attractive and therefore, heavy bribes are paid for such jobs. In this way, a chain of unfair and illegal actions takes place which entraps every person of the nation. The result is that every person who has power or political influence tries to misuse it for making money.

(b) Most of the poor people do not benefit from the infrastructure of the country, resulting in an extremely difficult environment for economic activities. Consequently, the common man is unable to escape poverty.

(c) It is stressful and time-wasting to use the infrastructure facilities; worries also lead to crime, violence and unrest, especially in the urban areas.

(d) People refuse to pay taxes because they do not get good quality infrastructure facilities and fear that their funds will be misappropriated by the official departments. In this way, a vicious circle is formed, resulting again in the lack of financial resources for infrastructure.

(e) Environmental degradation by deforestation for fuel wood, over-grazing, air pollution, pollution of water bodies, solid waste pollution, etc., is also a result of the inefficiency of the infrastructure facilities.

Governmental versus Private Management

The main cause of this governmental mismanagement is the absence of market-based economic forces. There are two motives for work efficiency. The first is the hope of profitability and reward, and the second is the fear of accountability and sanctions. Both motives are absent in the government departments. Since the salaries of the government officials are fixed and do not correlate with the efficiency of their work, nothing motivates them to work better.

Similarly, the accountability of government officials is also extremely weak because officials of the audit department

are also corrupt. Accountability through the judiciary is also not very effective because of corruption of the legal system itself.

Since a private enterprise works for the sake of profitability and has its own system of internal control, its management is always efficient, even in a developing country like Pakistan. Due to these reasons, infrastructures which are presently operated by private companies in Pakistan are functioning far better than those operated by the government. For example, the services of private hospitals, private schools and private means of transportation are incomparably better than those of the government.

In view of these considerations, it is quite clear that the condition of infrastructure in a developing country like Pakistan can only be improved if the infrastructure is privately constructed and operated and is subject to market forces.

Strategies for the Privatization of Infrastructure Facilities

Privatization of the infrastructure may be achieved in the following manner:

The executive divisions of the present infrastructure departments should be privatized and allotted to the private sector by bidding. This privatization can be partial or as a whole, depending on the size and specific conditions of a particular infrastructure. For example, the entire water supply and disposal system of a town may be given to a single private company. Similarly, each health and education unit may be given to a private company for operation and maintenance.

However, power generation, transmission and distribution in the country may be allotted to different companies. One company may generate the power, whereas different companies distribute the electricity to different sub-divisions after purchasing it from the company responsible for transmission. After privatization, the private company will own the infrastructure, operate it and levy fees from its users. The necessary legal regulations should also be chalked out in this regard to control the relationships between different companies and between general users and the companies.

In contrast to the executive divisions, the planning divisions should be kept intact as a government organ to accomplish the planning tasks as before. These planning divisions will also do the job of selecting the private company via bidding.

Like the privatization of existing infrastructures, each new unit of infrastructure will be offered to the private companies, through bidding, for constructing, owning and operating the infrastructure. The loans by the government and/or by the donor agencies should be given directly to the private company through the lending procedures used for extending loans to business enterprises.

An infrastructure privatization of this sort has the following positive points:

Infrastructure facilities will be constructed where they are really needed; i.e., where there is a market for them, because no private company will dare invest its money in an area where there is little or no return. In this way, the problem of powerful people personally interfering in the planning process of infrastructure will be tackled and the infrastructure will be planned on more technical and logical grounds.

Since a private company will be a smaller organization in which the interests of management and ownership are fully united, all types of corruption during the construction and operation of the infrastructure will be gotten rid of by the company itself in order to save it from losses. In this way, less wastage of money and more judicious use of resources will produce the best infrastructure facilities; a situation which is the best from a national economic perspective.

After privatization, debt servicing will also improve tremendously. The private company will recover the costs of infrastructural facilities from the users more efficiently for the sake of its own profits. In this way, the developing country will be saved from debt crisis on the one hand, and the foreign donors will have more money readily available for re-investment in the development sectors, on the other.

In addition to more extended foreign funds, private investment available within the developing country will also be utilized in the development process of the country, since private companies will have to provide equity before getting the loan for the project.

Limitations of Infrastructure Privatization

Despite all of these benefits of infrastructure privatization, there are also some limitations to this process. The ideal situation of sustainable development cannot be achieved until and unless these limitations are taken into account during the process of privatization. A detailed account of these limitations and the methodology of dealing with them follows:

Fair competition for the selection of private companies

Since it is a government organization that selects the winning private-company bidder for an infrastructure project, irregularities and bribes still play a distinctive role in selection. For example, there are allegations of such irregularities concerning the Privatization Commission of Pakistan, which is responsible for the privatization of government undertakings.

For different companies to compete fairly for the award of an infrastructure fund, the following procedure should be adopted:

- The invitation for the award of a fund for an infrastructure project should be sufficiently advertized in the region concerned.
- The private companies should be asked to send one copy of their bid to the infrastructure department concerned and another copy directly by fax or by post to the donor agency abroad. In this way, the lowest bid can easily be checked.
- The planning department should select the financially most attractive bid as a general rule. Moreover, if the department rejects a company on special grounds, it should give sufficient reason to the office of the donor agency.

Some infrastructures are not profitable

All infrastructures can be privatized where profitability is possible. However, there are some infrastructures where direct profitability is extremely difficult, if not impossible. Such infrastructures can simply not be privatized and should be kept in the hands of the government. An example for such an infrastructure is the road network within a locality.

Some types of infrastructure have no competition

There are some infrastructure facilities which can function effectively only if there is competition. For example, private companies operate health and education infrastructures efficiently under the pressure of competition. Similarly, competition exists in the provision of road and air transportation facilities if different companies operate them.

There are some infrastructures without competition and the quality of service as well as price level offered by the private companies may be objectionable. For example, the only road connecting two towns may be constructed and managed by a private company by imposing a toll on the passing traffic. However, due to the absence of competition in such a case, the good quality of the road cannot be ensured. The same may be the case with power and water supply.

In the privatization of infrastructures without competition, the following additional measures should be taken:

- Fixed price for the use of the infrastructure facility as a function of operational costs;
- Random checking of quality and price of the facility by independent inspectors;
- Advertisements in the local newspapers inviting the general public to send their complaints regarding price and quality of the infrastructure facility to the donor agencies;
- Strict sanctions against companies in case of violation of the rules on price and quality.

Possible environmental carelessness of private companies

Since environmental considerations concern the general public and not merely the individual, features of infrastructure which counterbalance environmental impacts are not given enough attention by private companies. For example, a private company will not take care of leaks in the sewerage system polluting the ground water. Similarly, the efficient functioning of sewage treatment plants of a sewerage system cannot be ensured by a private company inspite of the fact that the costs of construction and operation of such plants can easily be recovered from citizens through sewerage bills.

In order to ensure a positive attitude towards environmental considerations, strict controls should be imposed on the private companies as proposed in the case of the infrastructure without competition.

Equitable distribution of infrastructure

Private companies are not interested in the equitable distribution of infrastructure facilities in the country. They have an efficiency-oriented approach and thus are interested in constructing the infrastructures in large urban centers for the sake of maximum profitability. Thus, further urbanization takes place in the larger towns, creating uncontrollable environmental problems due to overcrowding.

To avoid further urbanization and to achieve equal regional dispersion of the fruits of development, the funds should be given to the private companies with some reservations. These reservations are as follows:

Top preference should be given to those infrastructure projects which are located in the underdeveloped regions. Since the profitability of infrastructures in such regions is questionable, the private companies may not be very interested in running such projects. The loans for infrastructure in such regions should, therefore, be proposed for soft terms.

However, private companies may be interested in those infrastructure projects which could directly affect basic income generation activities, such as irrigation schemes, rural electrification projects or a hydropower plant, even in a backward region. Similarly, an infrastructure associated with a basic income generation project in a poor region, such as a road or mining project, can also attract private companies.

The second preference should be given to the infrastructure in the intermediate cities, especially those surrounded by poor regions. Intermediate cities can provide the minimum amount of wealth required for the sufficient profitability of the infrastructure projects.

No or few funds should be allocated for the infrastructures of larger towns in order to avoid further urbanization. Moreover, since the elite of the country as well as politically influential people live in the larger towns, they usually take care of infrastructural facilities which may be financed from the local budgets.

Conclusion

In undertaking all these measures, cooperation is required from the topmost government elites, who are not interested in changing the situation because of their own vested interests. The only possibility that remains is that all the donor countries and agencies such as the World Bank, the IMF, other Development Banks and the development funding agencies of the developed countries put pressure on the government to take the necessary steps to privatize infrastructure facilities to achieve the ultimate aim of sustainable development.

Mao Qizhi, Juan Pablo Garcia Vargas, Fred Higenyi, Eberhard Knapp

Private-Sector Participation in Infrastructure Development
The Philippine Experience

Ronnie S. Navarro

Zusammenfassung

Das Build-Operate-Transfer-Programm (BOT) hat sich zu einem Rechtsinstrument für die Beteiligung der Privatwirtschaft an der Infrastrukturentwicklung eines Landes etabliert. Es hat nicht nur zum Zweck, privates Kapital insbesondere für die kostenintensiven Infrastrukturaufgaben des Landes zu gewinnen, sondern regelt zugleich die Bedingungen für Erstellung und Betrieb der Einrichtung. Der Autor beschreibt die Bandbreite der Kooperationsformen zwischen Privatwirtschaft und Staat, sowie Auswahlverfahren, finanzielle Anreize und Kontrollmechanismen.

Abstract

This paper intends to present the different contractual arrangements currently in use in the Philippines and which could also be replicated in other developing areas of the world. Build-Operate-Transfer (BOT) and its other variations have become a legal instrument in freeing the national and local government units from the huge financial responsibility of funding various capital-intensive infrastructure programs. Under a BOT scheme, the government may enter into negotiated contracts for the financing, construction, repair, rehabilitation, improvement and operation of infrastructure facilities with the private sector, provided there is no government financing or financing guarantee for the contracts. This is consistent with the conviction that sustainable economic development can be achieved only if infrastructure comes first.

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Introduction

The primary goal of any development effort is to attain economic growth. This is necessary for the improvement of a country's income levels and living standards. Major infrastructure investments are therefore necessary to sustain economic growth. This requires a mix of public sector investment in physical and human infrastructure, private sector participation, appropriate economic and institutional policies, and protection of the environment to ensure sustainable development.

Unfortunately, development efforts in many developing countries are suffering serious backlogs in their development goals primarily due to institutional lapses and funding deficiencies. Rapid, unguided growth, coupled with limited government resources, ineffective control mechanisms and difficulties in quantifying the negative impacts of urban activities, outstrip the capacity of existing infrastructure and the ability of governments to maintain and improve facilities. It is increasingly recognized that in spite of its often chaotic and uncontrolled nature, urbanization plays an important role in a country's development process and, if successfully managed, can lead to economic success. As urbanization takes its course, governments are starting to realize that servicing infrastructure needs is costing them a large amount of money. In most cases, most governments cannot adequately supply the required infrastructure services to meet current demand, let alone future needs.

The Philippines is no exception to this. In its Medium Term Development Plan (1993-1998), the country's goal is to promote economic growth through greater private-sector participation in nation-building. In this way, the government, perennially faced with the shortage of funds to implement its development projects, now has the means to do so without necessarily committing scarce resources. Thus, whatever funding the government has available can now be utilized in projects the private sector finds unattractive.

The Role of the Private Sector

The Philippine Infrastructure Privatization Program, also known as the Philippine BOT (Build-Operate-Transfer) Program, aims at harnessing the innovativeness of the private sector in the provision of the necessary public infrastructure projects needed to become a newly industrializing country by the turn of the century. This reflects the government's recognition of the important role the private sector plays in the overall development efforts. The private sector, as a dynamic entity, has access to broad capital markets, better management skills, latest available technology, and can implement a project much faster than the public sector.

The Philippine BOT Law

The Philippine BOT Law (Republic Act No. 6957, as amended by Republic Act No. 7718), is an innovative and revolutionary approach to infrastructure development. It provides incentives to local and foreign private investors to finance the construction, operation and maintenance of power plants, roads and highways, mass transit systems, airports, irrigation projects, water supply and waste treatment facilities, telecommunication facilities, dam projects, etc.

Vaious Contractual Arrangements Under BOT

Its different contractual variations are as follows:

– *Build-and-Transfer (BT)*
A contractual arrangement whereby the project proponent finances and constructs a given infrastructure or development facility and after completion turns it over to the government agency or local government unit (LGU) concerned. The latter pays the proponent, on an agreed schedule, its total investment expended on the project, plus a reasonable rate of return thereon. This arrangement is employed for critical projects which for security or strategic reasons must be operated by the Government.

– *Build-Lease-and-Transfer (BLT)*
A contractual arrangement whereby a project proponent is authorized to finance and construct an infrastructure or development facility, and, upon completion, turns it over to the government agency or LGU concerned on a lease arrangement for a fixed period. Thereafter, ownership of the facility is automatically transferred to the government agency or LGU concerned.

– *Build-Operate-and-Transfer (BOT)*
A contractual arrangement whereby the project proponent undertakes the construction, including financing, of a given infrastructure facility, and the operation and maintenance thereof. The project proponent operates the facility over a fixed term during which it is allowed to charge facility users appropriate tolls, fees, rentals, and charges not exceeding those proposed in its bid or as negotiated and incorporated in the contract to enable the project proponent to recover its investment, and operating and maintenance expenses in the project. The project proponent transfers the facility to the government agency or LGU concerned at the end of the fixed term, which shall not exceed fifty (50) years. This includes a supply-and-operate situation, which is a contractual arrangement whereby the supplier of equipment and machinery or a given infrastructure facility, if the interest of the Philippine government so requires, operates the facility providing process technology transfer and training to the citizens of the Philippines.

– *Build-Own-and-Operate (BOO)*
A contractual arrangement whereby a project is authorized to finance, construct, own, operate and maintain an infrastructure or development facility, in which the proponent is allowed to recover its total investment, operating and maintenance cost plus a reasonable return by collecting tolls, fees, rentals or other charges from facility users. Under this project, the proponent which owns the assets of the facility may assign its operation and maintenance to a facility operator.

– *Build-Transfer-and-Operate (BTO)*
A contractual arrangement whereby a government agency or LGU contracts out the building of an infrastructure facility to a private entity such that the contractor builds the facility on a turn-key basis, assuming cost overruns, delays, and specified performance risk. Once the facility is commissioned satisfactorily, title is transferred to the implementing agency. The private entity, however, operates the facility on behalf of the implementing government agency under an agreement.

– *Contract-Add-and-Operate (CAO)*
A contractual arrangement, whereby the project proponent adds to an existing infrastructure facility which is renting from the Government and operates the expanded project over an agreed franchise period. There may or may not be a transfer arrangement as regards the added facility provided by the project proponent.

– *Develop-Operate-and-Transfer (DOT)*
A contractual arrangement whereby favorable conditions external to a new infrastructure project to be built by the project proponent are integrated into the arrangement by giving the same right to develop adjoining property, and thus, enjoy some of the benefits the investment creates, such as higher property or rent values.

– *Rehabilitate-Operate-and Transfer (ROT)*
A contractual arrangement whereby an existing facility is turned over to the private sector to refurbish, operate and maintain for a franchise period, at the expiry of which the facility is turned over to the Government. The term is also used to describe the purchase of an existing facility from abroad, importing, refurbishing, erecting and operating it within the host country.

– *Rehabilitate-Own-and Operate (ROO)*
A contractual arrangement whereby an existing facility is turned over to the private sector to refurbish and operate with no time limitation imposed on ownership. As long as the operator is not in violation of its franchise, it can continue to operate the facility in perpetuity.

Bidding Procedures

Concerned government agencies and LGUs prepare their infrastructure development programs that may be financed, constructed, operated and maintained by the private sector. These are publicized widely. Any individual, partnership, corporation or firm, whether local or foreign, including joint venture or consortia of local, foreign, or local and foreign firms, may participate or apply for prequalification. Prequalification requirements include certain legal requirements as to citizenship, track record experience of the firm or consortia, and financial capability.

In the Philippines, the "two-envelope system" is used in the submission, receipt and opening of bids. The first envelop is labeled "Technical Proposal", and shall contain the operational feasibility of the project; the preliminary engineering design, including the proposed project timeline; the preliminary environmental assessment; project cost including operating and maintaining cost requirements, the proposed financing plan, and the posting of bid security. The second envelop is labelled the "Financial Proposal".

Evaluation of Bids

The evaluation of bids is undertaken in two stages. The first stage is to assess the technical, operational, environmental and financial viability of the proposal. The technical proposal is evaluated in accordance with the following:
– technical soundness;
– operational feasibility;
– environmental standards;

- the proposed financing plan and other enhancements which the project proponent may offer to the Government to make the proposal more attractive; e.g., fewer government guarantees or reduction in the level of government undertakings or support.

The second stage of evaluation involves the assessment and comparison of the financial proposals of the bidders.

Unsolicited Proposals

An unsolicited proposal qualifies if:

- the project involves a new concept or technology and/or is no part of priority projects. New technology is hereby defined as a recognized process, design, methodology or engineering concept which has demonstrated its ability to significantly reduce construction cost, accelerate project execution, improve safety, enhance project performance, extend economic life, reduce cost of facility maintenance and operations, or reduce negative environmental impact or social/economic disturbances or disruptions during either the project implementation/constuction phase or operation;
- the project does not entail any direct government guarantee, subsidy or equity.

Award of Contract

The contract is awarded to the bidder with the lowest complying evaluated bid. In case of his refusal, inability or failure, the government agency/LGU concerned shall forfeit his bid security and shall consider the next complying and qualified lowest evaluated bid. In the event that the concerned government agency/LGU is unable to execute the contract with any of the complying and qualified bidders due to the refusal of the latter, the project will be subjected to rebidding.

In the case of a project requiring utility franchise, the winning project proponent shall automatically be granted the franchise to operate and maintain the facility, including collection of tolls, fees, rentals, and other charges in accordance with the schedules stipulated in the approved contract.

In case of projects requiring detailed engineering design, the winning project proponent shall be responsible for the preparation of the detailed engineering designs and plans based on the prescribed minimum design and performance standards and specifications. The project proponent shall build the facility in accordance with the design and performance standards and specifications prescribed in the approved detailed engineering design. In addition, a performance security shall be posted by the proponent to guarantee his faithful performance.

Fiscal Incentives

Projects costing over P 1 billion (about USD 35 million) are entitled to incentives as provided under the Philippine Omnibus Investment Code. LGUs may also provide additional tax incentives, exemptions, or reliefs subject to the provisions of the Local Government Code of 1991. The government may also provide any form of direct or indirect support or contribution such as, but not limited, to the following:

- *Cost Sharing*

This means that the government agency concerned will bear a portion of the capital expenses associated with the establishment of an infrastructure development facility such as the provision of access infrastructure, right-of-way, or any partial financing of the project.

- *Credit Enhancements*

This refers to direct and indirect support of a project/development facility by the project proponent and/or government agency concerned, the provision of which is contingent upon the occurrence of certain events and/or risks, as stipulated in the contract. These credit enhancements may include a guarantee by the Government on the performance of the obligation of the government agency concerned under its contract with the proponent, subject to existing laws.

Conclusion

Infrastructure development under the BOT concept is in its infancy. At this stage, it is premature to judge for or against this concept. Only time will tell the success of private sector development and ownership. However, if conducted in a fully transparent manner, BOT will promote open competition and the lowest possible cost.

Private sector participation, indeed, has now become a major development and financing technique around the world. The Philippine experience and its BOT Law is now considered a progressive *Build-Operate-Transfer*-legislation, a model a number of countries including China, Vietnam, Thailand, and so on, are beginning to follow.

Infrastructure for Sustainable Urban Development –
An Overview of Urban Development Interventions in Ghana

Samuel Adoboe

Zusammenfassung

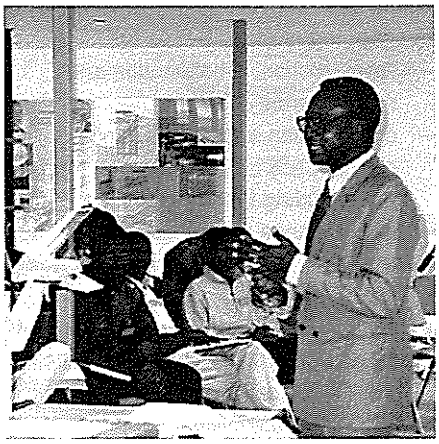
Dieser Artikel gibt einen Überblick über Stadtentwicklungsprogramme in den späten 80er Jahren, die von der Weltbank und anderen bilateralen Gebern finanziert wurden. Insbesondere untersucht der Artikel die städtische Infrastrukturentwicklung in Ghana, wo die finanziellen Hilfen weder zur Herstellung neuer noch zur Unterhaltung bestehender Infrastrukturanlagen ausreichen. In einem neuen Modellversuch müssen die Benutzer von Infrastruktureinrichtungen sich daher aktiv an der Erstellung und dem Unterhalt beteiligen.

Abstract

Urban development programs were initiated in the late 80s and supported by the World Bank (IDA) and other bilateral donors in order to create the necessary environment for economic growth and social progress. These programs are complementary to the economic recovery program. The coverage of infrastructure facilities as well the services provided are still inadequate, and urban authorities are finding it increasingly difficult to operate and maintain existing infrastructure facilities because of the lack of financial, technical and managerial resources. The paper examines the urban infrastructure development situation in Ghana and provides a brief history of the various interventions to promote healthy urban growth. The new approaches with regard to policies and strategies to involve the beneficiaries in the planning, design and implementation, operation and maintenance of infrastructure, which had been introduced to make infrastructure investments sustainable, are also examined.

Introduction

Cities and towns, which serve as centers of industry and services, contribute more than 50% of Ghana's GDP. Urban settlements as market service centers also play a vital role in rural development. The inadequacy of urban infrastructure and services such as roads and drainage, water supply, sanitation, solid waste management, telecommunications and electricity, is a major constraint on the productivity of urban households and enterprises and, consequently, on national economic development. It has been estimated conservatively that about 350 million US dollars would be required to rehabilitate the existing infrastructure and services in Accra, Kumasi, Sekondi/Takoradi, Tema and Tamale, which are the five largest towns in Ghana. This is to say nothing of the provision of new infrastructure facilities and services to meet the shortfall in demand.



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The main issues in urban development in Ghana are the improvement of basic infrastructure and services and the strengthening of the technical, financial and managerial capacity of local authorities. The improvement of the coverage of urban infrastructure and services requires not only investment but also major efforts to build the institutional capacity of local authorities in the field of planning, management, finance and operation and maintenance. Municipal and metropolitan institutions that are weak are not capable of providing the adequate services, ensuring the sustainability of services and investments or mobilizing funds for operation and maintenance of facilities.

Population and Urbanization in Ghana

Thirty-one percent of Ghana's 17 million people live in some 185 urban areas. The two largest cities, Accra (the capital) and Kumasi (the second city and capital of the Ashanti Region), dominate, accounting for about 35 percent of the urban population. Together the five largest cities account for over 50 percent of the urban population. The Greater Accra Region, with 85 percent of its population living in towns of more than 5,000, is by far the most highly urbanized of Ghana's 10 administrative regions.

Urban population growth rates declined from 4.8 percent p.a. during the 1960-70 period to 3.2 percent during 1970-84. Assuming, conservatively, that the 1970-84 rate of growth continues between 1990 and 2000, the urban population would increase by about 1.6 million persons (reaching 35 percent of total population), with about one-half of this growth occurring in the Greater Accra Region.

Ghana has one of the lowest rates of urbanization in Africa, and the opportunity exists to manage this growth in a socially and economically efficient way.

The State of Urban Infrastructure

Urban institutions and infrastructure deteriorated considerably during the economic crisis of the 70's and the early 80's. Modest and gradual improvements are being made with institutional reforms and IDA support.

Water Supply

Water supply deficits are high in some cities and towns; only a minority of households have access to domestic connections. Priorities in urban water supply are rehabilitation of existing facilities, including restoration of designed capacity and improvement of reliability and quality of service. The World Bank-assisted Water Sector Rehabilitation Project has initiated efforts to achieve these objectives.

Sanitation

Apart from the three water-borne sewerage systems in Accra, Tema and Akosombo, which are managed by the Ghana Water and Sewerage Corporation (GWSC), sanitation in urban areas is through on-site systems (septic tanks and pit latrines for both public and household toilets) managed by the Assemblies and individual households. These facilities, in most cases, are inadequately designed and built and poorly maintained. In general, the capability of the Assemblies to operate and maintain public toilets and cesspit-emptying services varies from fair to non-existent. The private sector performs some of these services in the larger cities. Because of the high cost of conventional sewerage, moderate and low-cost on-site technologies will remain the principal solution to urban sanitation, especially in the medium-sized and small cities. The main challenge is not technological, but in the area of management.

Solid Waste

The collection of refuse is the responsibility of the Assemblies. Accra and Kumasi Metropolitan Assemblies, which have benefitted from bilaterally-funded projects recently, now provide reasonably effective solid-waste collection and disposal services. However, revenue collection remains a major bottleneck; hence, depreciation, operation and maintenance costs cannot be covered. The World Bank-assisted Urban II project is providing assistance in solid waste to Tema, Sekondi-Takoradi and Tamale. In small and medium cities, solid-waste collection services handle only a small fraction of the refuse generated. Garbage is dumped in open heaps which lie uncollected for long periods, or in drainage channels which become blocked. Final disposal sites are usually simple dumps, not sanitary landfills, with attendant environmental problems. Local officials in the cities identify solid-waste collection and disposal as a very serious problem and a major priority.

Roads

Most of the roads in urban centers are in poor condition. In some cases, key road segments have deteriorated to the point that travel is slow and hazardous. Three agencies are currently responsible for providing and maintaining roads:

- the Ghana Highways Authority (GHA), responsible for trunk roads,
- the Department of Feeder Roads (DFR), responsible for rural roads, and
- the Department of Urban Roads (DUR), responsible for non-trunk roads in the cities of Accra, Kumasi, Sekondi-Takoradi and Tema.

All three agencies are under the Ministry of Roads and Highways.

Under Law 207, the Assemblies have overlapping responsibilities for

- construction, rehabilitation and maintenance of streets,
- construction and maintenance of public roads other than trunk roads but including feeder roads, and
- maintenance as agents of GHA, of trunk roads lying within the boundaries of their area.

In practice, the Assemblies have not begun to exercise these responsibilities. This is a good example of a subsector for which responsibilities need to be clarified.

Storm Drainage

Responsibility for storm drainage is not clear under Law 207. Roadside drains usually are included in road construction, rehabilitation and maintenance. However, area-wide drainage receives little attention. In many cities, lack of storm drainage contributes to unhealthy ponding of stagnant water and sometimes localized flooding.

Markets and Lorry Parks

Markets and lorry parks are provided and operated exclusively by the Assemblies and they are the Assemblies' major revenue earners. These facilities are in a poor state, and much potential exists for increasing revenues through upgrading the physical infrastructure, charging higher fees, and improving management.

Urban Finance

For local authorities to operate and maintain infrastructure facilities, access to adequate financial resources is imperative. In the 1960's, local councils could cover the recurrent expenses and make a small contribution to capital investment. Things have changed drastically owing to economic crises experienced in the 70's. Presently, serious local government deficits exist, and the Assemblies can no longer cover even their recurrent expenditure. They therefore do not have any surplus funds for capital investments or for the operation and maintenance of public facilities. Property tax, a potential source of revenue for the Assemblies, does not yield much because the properties have not been revalued since the 1960's.

The Assemblies derive their revenue largely from transfers from the central government and local revenue mobilization. Transfers account for 40-60% of total revenues. Transfers consist of grants covering 100% of staff salaries, ceded revenues which comprise entertainment duty, casino revenue, billing tax, business registration fees, advertisement tax, etc. These are collected centrally and assigned to the Assemblies. Then there are some limited grants to development projects. The 1992 constitution has enabled the establishment of a common fund which is to receive an annual allocation from parliament of not less than 5% of total government revenues. This has increased the volume of transfers to the Assemblies.

The major share of locally generated revenues comes from fees and charges, of which market fees have been the most important, accounting for 20-40% of local revenues.

Urban Sector Interventions in Ghana

These include a number of multilaterally- and bilaterally-assisted urban projects, incentives for private housing developers, and the initiation of a national program of decentralization. The World Bank's assistance for urban development in Ghana began in 1985 with the Accra District Rehabilitation Project (ADRP), which included infrastructure and technical assistance for improved resource mobilization and financial management. Other Bank-supported projects are the Priority Works Project (PWP, 1988), which focuses on the rehabilitation and upgrading of infrastructure in the four major cities, and the Urban II Project (1990), which extends the ADRP experience to the cities of Tamale, Kumasi, Sekondi/Takoradi and Tema. Bilateral assistance (Germany, Britain, Canada) has also funded projects for waste management in Accra and Kumasi, road improvements in Kumasi, and water supply improvements in secondary towns. The UNDP has supported technical assistance projects for the development of a Structure Plan for Accra and improving sanitation in Kumasi.

Under the Local Government Development Project (Urban III), The World Bank, together with other bilateral donors, are providing assistance for the improvement of basic infrastructure and services in 11 secondary towns which account for about 11% of the urban population. The main objective is to extend urban infrastructure investment to the next "tier" of the urban hierarchy and to build institutional capacity at the central and local levels to support the decentralization program.

The government of Ghana has embarked upon a decentralization program in the area of local government. The Local Government Law (PNDCL 207, 1988) gave authority for the establishment of 45 new districts (local government), bringing the total to 110.

Ghana's decentralization policy is embodied in:

- The 1992 Constitution of The Republic of Ghana (effective January 7, 1993);
- The Local Government Law 207 (1988);
- Various Local Government (District Assembly) (Establishment) Instruments and
- The Local Government (Urban, Zonal, Town Councils and Unit Committees) (Establishment) Instrument (1991).

It is the clear intention that the Assemblies will have complete, devolved responsibility for policy formulation and planning for the sectors assigned to them as well as for the management of investment project implementation and on-going operation and maintenance. However, District Assemblies have limited access to sources of revenue to finance this wide range of local government activities.

Assessment of Previous Urban Development Interventions

Progress to date in the area of urban development has been encouraging; Accra's revenues have increased in real terms since 1985. Its accounting systems have been improved through computerization. On the other hand, institutional development components were not given much emphasis in the early stages of project implementation. Attention was concentrated on the provision of the hardware (the physical infrastructure). In addition, no efforts were made to put in place a sustainable operation and maintenance system. The usual approach is to construct the facility and then think of how it would be operated and maintained.

The Local Government Development Project (Urban III) which is now on-going seeks to address this issue by focusing on the building of the institutional capacity at the central and local levels to promote effective and sustainable operation and maintenance of facilities and to promote decentralization.

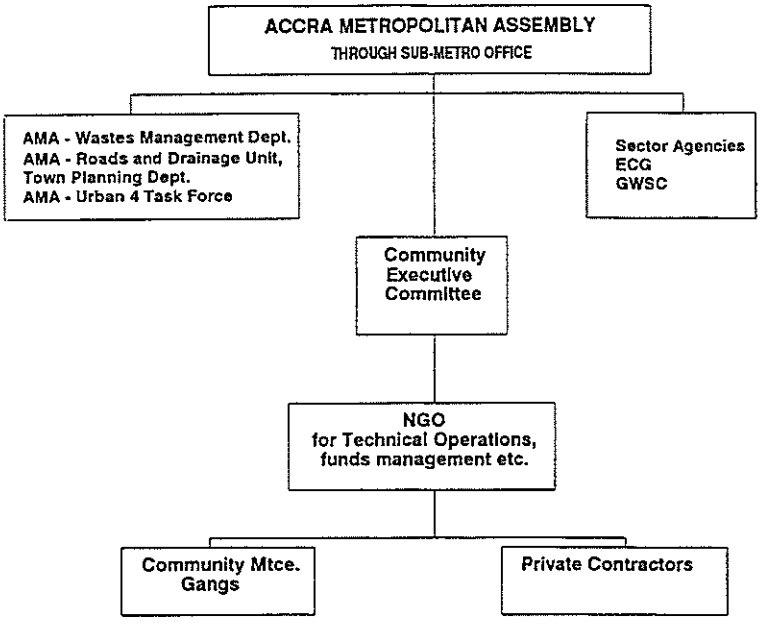

Figure 1: Organizational structure for the maintenance of facilities

The New Approach to Urban Infrastructure Delivery and Management

The new approach focuses on the user. This approach provides the infrastructure to meet the demand expressed by the beneficiaries. The Community Infrastructure Upgrading Component of the Urban Environmental Sanitation Project was based on this approach.

Under this project, local infrastructure will be upgraded in 7 selected communities with severest infrastructure deficiencies in Accra, Kumasi and Sekondi-Takoradi. The basic needs of the communities were identified through a demand-driven approach, in order to promote sustainability and foster ownership of the project by the beneficiaries.

The project was developed in accordance with the following principles:

a) The communities were selected and formally approved by the respective Metropolitan Assemblies. Inclusion criteria were, for example, a poor state of existing infrastructure and services; community cohesiveness; and current community-group initiatives.

b) The engineering assessment of needs was based on community demands, and has involved the participation of the selected communities at all stages of planning and design. This fosters a sense of ownership by the communities with the objective of ensuring adequate future levels of operation and maintenance. A range of service-level options (basic, intermediate, full) of possible basic infrastructure components was developed, together with their respective cost implications (capital and maintenance costs). These were used to commence the participatory planning process.

c) The possible components to be supported, based on needs assessment, covered the basic engineering infrastructure and municipal services; namely, access (roads and footpaths), drainage, water supply, sanitation (human waste management), solid-waste management, streetlighting.

d) The communities are to fully cover the operation and maintenance costs of infrastructure to be provided. This factor was a key determinant in communities deciding upon services levels, program size and cost. The recovery of costs will be through user charges and via the property tax system and/or community contributions (roads and drains).

e) The preparation of a "Facilities and Management Plan" forms an integral part of the project preparation process. This will set out the facilities to be upgraded, their implementation, capital and estimated operation and maintenance (O & M) cost requirements, modalities for O & M. It will also set out responsibilities for the operation and maintenance of facilities.

Figure 1 gives the proposed organizational structure for the management of facilities at the community level.

Conclusion

With the active participation of beneficiaries in the provision and management of infrastructure facilities, a high level of efficiency could be achieved in the delivery of services. This could lead to the effective utilization of scarce resources, and projects would be more likely to be sustainable. Communities now own the projects, so that a higher sense of commitment to the maintenance of facilities exists. In addition, the collection of user fees would become much easier and costs could be covered. This is because the beneficiaries will participate actively in the setting of the user fees. With the adoption of this approach, communities have become part of the development process, and this has enabled the selection of technologies to meet the specific demands of the users.

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Small-Town Development in the Beijing Metropolitan Region –
A Case Study of the Haidian District

Mao Qizhi

Zusammenfassung

In diesem Artikel wird der Masterplan für Peking (1991-2010) und seine Implikationen für den Verstädterungsprozeß des Großraums von Peking erläutert.

Von Bedeutung sind hier die kleineren Städte der Region, die durch gesteuertes Wachstum die Zentralstadt entlasten sollen. Dabei entsteht vielerorts der Konflikt zwischen Natur- und Umweltschutz auf der einen Seite und wirtschaftlich-technischer Entwicklung auf der anderen.

Abstract

This is a preliminary study on small towns around Beijing city proper, based on working experience since 1990. In the last few years, a number of pilot projects were carried out in a northwestern suburb of Beijing by the Institute of Architectural and Urban Studies at Tsinghua University. The paper uses Beijing Haidan District as an example to introduce its rural-urban transitions process, socio-economic development, spatial layout, and some urgent infrastructure planning issues.

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The Beijing City Master Plan and Small-Town Development

The Beijing City Master Plan (1991-2010), which was approved by the State Council in October, 1993, aims not only to develop Beijing into a first-class international and cultural city, but also to modernise its flourishing economy, stabilise society, and improve the standard of social facilities, infrastructure and environmental conditions.

Since the founding of new China, Beijing has experienced rapid urbanization. In the past four decades, the Beijing municipal jurisdiction has grown from an area of 707 sq.km to 16,800 sq.km with a scattered urban pattern. The city's total population increased from two million at the beginning of the 1950s to 13.9 million by the end of 1994. Sixty percent of the population is concentrated on the 1,040 sq.km of planned central city, with a very high population density, especially in the old inner city. Since overcrowding is one of the key issues hampering the city's further development, the Master Plan proposes that the urban spatial structure be reorganized in the following four areas:

1. In the next 20 years, the overcrowded population and industries in the central city proper will be progressively decentralised to its surroundings of 16,800 sq.km. Beijing municipal region will be wholly developed by creating more small towns, recreational areas, open spaces and modern farms. According to a forecast of the Beijing Master Plan, the total population in the municipal region will reach 16 million in the year 2010, but that in the central city proper will be controlled so that it does not exceed a total of 6.5 million. The

Master Plan aims at resettling the 2.5 million increased urban population in the outlying areas; a strategy to develop enough living space, better working conditions and a high standard of living in the small towns.

2. Although all Beijing suburban areas will be developed, the plain in the southeast will be the major region for development. Since the urban growth axis along the Beijing-Tianjin-Tanggu freeway leads to the seaport, more enterprises are concentrated in these areas because of easy accessibility. This freeway will become a main city growth axis of Beijing.

3. Since Beijing municipality is very large, the city will take advantage of its size to develop the central city, the satellite towns, the leading towns and the ordinary towns. The 14 satellite towns were planned for a population of 150,000 - 400,000 inhabitants each. The leading and ordinary towns will play their roles, especially in economic development. The rural industries will be based in small towns in order to absorb a large amount of the surplus rural labour

force and to reduce population pressure on the central city itself. In the year 2010, Beijing will have 140 small and medium-sized towns instead of 77 in 1990.

4. All townships are to draw up their own land use plans and to integrate these developmental plans into the Beijing City Master Plan, in order to adjust rural land use to the whole municipal region.

History of Rural-Urban Development in Haidian District

The research on small-town development in the Beijing metropolitan region will take the Haidian District as a case study example.

General Information

Haidian District is one of the four outskirt districts of Beijing and is located northwest of the old city. The district extends over 426 sq.km and had a total population of 7 million at the end of 1994, including about 20 per cent floating population. Today, the urbanisation level in Haidian District is about 90%.

Flat land makes up three-fourths of the district's area, including 12,000 hectares of cultivated land for grain, vegetable and fruit production. Among the hills in the middle and west of the district, the highest is Yangtaishan at 1,278 meters. There are plenty of underground water resources, and the Beijing-Miyun Canal is the largest waterway in its river system. There is the Yongdinghe river in the south, and the Shahe river basin in the north, as well as the middle part, Haidian platform, which is surrounded by the Yuquanshan-Wanquanzhuang river system.

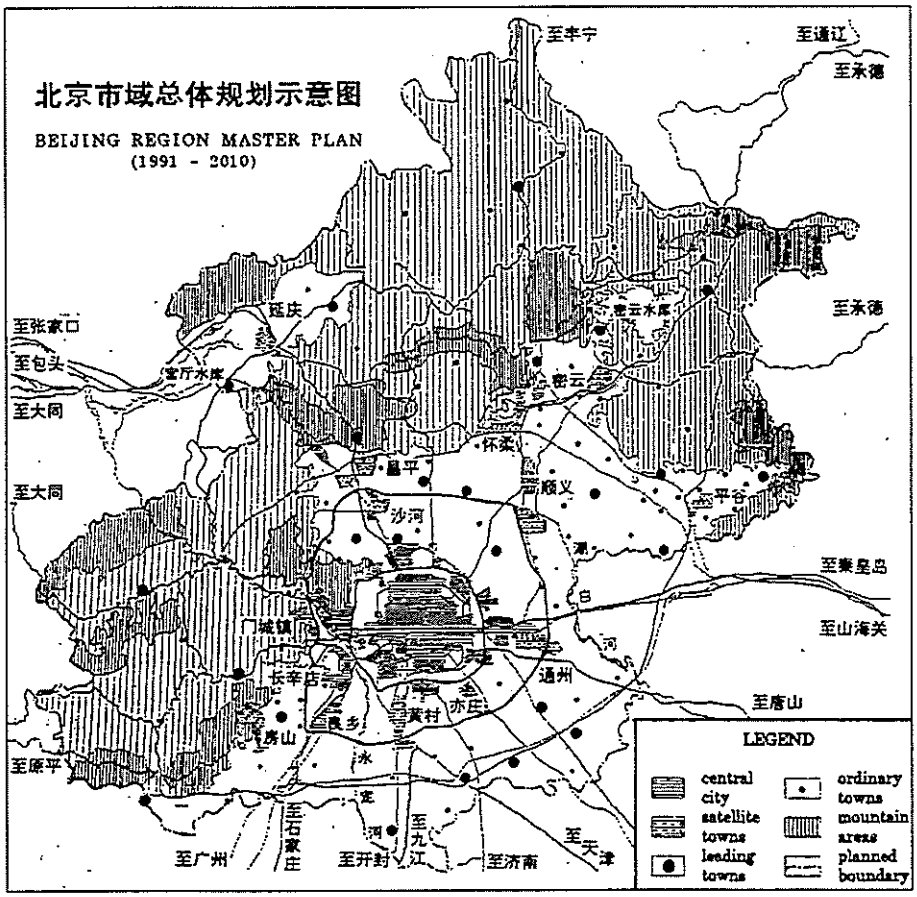
Nowadays, the district is subdivided into 17 street offices and 11 townships including three farms. Divided by the Xiaoxishan Hill and the Qinghe river, the district primarily consists of the front and rear hill areas. The front hill area covers 198 sq.km and has a total of 17 street offices and four townships. It is a very urbanized area and the population density is about 7,000 inhabitants per square kilometre. In the area are many scientific and educational institutions as well as governmental organizations. The rear hill area includes six townships with a population of about 100,000. More than 70 per cent of those who live in this area are traditional peasants. The Dongbeiwang township is located between the front and rear hill areas and has a total of 34,500 inhabitants. It was originally located outside the planned urban areas. However, with rapid urbanization in the 1990s, more farmland underwent urban construction, so that urbanization has reached more than 65 per cent.

Since the 1980s, the transportation system has developed very fast. There are now three railroads around Haidian District, and subway No.1 running in the south. The construction of a number of primary roads in the front hill area is almost complete and all townships in the rear hills have asphalt roads linking them with every administrative seat and the main villages. There are also about 40 public bus and trolleybus lines within the district.

History of Rural-Urban Development

Since 1949, the Beijing northwestern cultural and educational area and scenic spots have been rapidly developing with numerous construction activities. From the 1950s - 1960s, the city was seen as an ideal urban pattern where large amounts of farmland and open spaces were preserved between the central city proper and the town of Haidian.

With its "open-door economic reform" carried out since 1979, the Haidian District welcomed the construction. In 1983, the Beijing Urban Construction Master Plan (1981-2000) was approved by the central government. The Master Plan pointed out that, since the land in the northwest and west near the suburbs of Beijing had been completely built up, no new projects could be proposed for this region. The main future development for this region will, therefore, focus on land-use regulation and urban infrastructure systems. In the meantime, however, the Master Plan proposes the development of several modern small towns based on existing township seats and rural enterprise locations. These small towns, considered to be an important component of the Beijing's urban system, will, in some regions, become the economic-cultural centres. However, urban development in the last ten years has not been carried out according to the proposed plan, especially in the rural-urban belt. In these regions, the open spaces were built upon and the urban built-up areas have sprawled into the countryside.



	total pop. (head)	permanent (head)	agriculture (head)	urban. lev. (total, perm.)
Dongbeiwang	33,385	21,985	15,277	54%, 31%
Wenquan	24,669	23,954	11,306	54%, 44%
Yongfeng	19,504	15,633	12,970	18%, 17%
Total	73,958	61,572	39,553	47%, 32%

Table 1: Population in the study area, 1990

	total area (sq.km.)	pop. density (head/sq.km.)	cultivated (mu)	cul./head (mu)
Dongbeiwang	42.45	786	20,664	1.35
Wenquan	32.32	763	18,858	1.67
Yongfeng	28.40	560	24,080	1.86
Total	103.17	717	63,602	1.61

Table 2: Land-use in the study area, 1990

	residential committee	natural village	middle school (No.)	(student)	primary school (No.)	(pupil)
Dongbeiwang	16	21	2	1,020	10	2,985
Wenquan	8	17	3	855	6	1,540
Yongfeng	10	17	1	329	9	1,684
Total	34	55	6	2,204	25	6,209

Table 3: Administration and education in the study area, 1990

	SGI (mil.)	tol. laborer (head)	av. income (yuan/head)	lab. income (yuan/head)
Dongbeiwang	132.0	9,400	1,637	2,660
Wenquan	111.0	5,763	1,441	2,827
Yongfeng	132.0	7,461	1,363	2,856
Total	375.0	22,624	1,583	2,767

Table 4: Social Gross Income (SGI) in the study area, 1990 (at current prices, unit: yuan)

Since the mid 1980s, a great number of high-tech businesses have been set up in the centre of the Haidian District. This area is now called Zhongguancun Scientific Town, or the electronic street (China's Silicon Valley.) In May 1988, the Beijing Experimental Zone for the Development of New Technology Industries (BEZ) was established in the Haidian District, centred in Zhongguancun and covering 100 sq.km. In 1993, there was a total of 3,000 high-tech enterprises registered in the BEZ, including more than 800 foreign investors. Total turnover has reached 10 billion yuan RMB.

In the 1990s, urban development in the northwest has sprawled out of the originally planned areas, using up the planned city open space towards the unplanned countryside. In the Haidian district, the Qinghe and Xiyuan clusters have grown rapidly. The Shangdi Information Industry Base (SIIB) was founded in 1991 on the western border of Qinghe cluster. The new Beijing City Master Plan (1991-2010) accepted the SIIB, but the project halted the ideal urban pattern, one of the planned urban "green lungs".

Today, the southern part of Haidian District is fully urbanized, but some development projects could still be arranged in that rural-urban belt and in the countryside of the rear hill area. Therefore, the municipal and district governments have proposed new ideas for this region.

The Socio-Economic Development and Urban-Rural Spatial Layout Plan in Haidian District

Socio-Economic Development

In 1992, the Haidian Government outlined the district economic developmental strategic plan for the next five years. The government intends to use this strategy to promote overall development in the whole district.

In the southern part, the Beijing New Railway Station is under construction, and a commercial and urban service centre will be developed at the new station. In the northern part, the strategy is to develop a new rural economic zone and to improve the economic situation of the people in the hill's rear area. In the middle part, a high-tech enterprise group will be developed around Zhongguancun Scientific Town, which will also be linked with the SIIB. The goal of this group will be to build up a high-tech industrial zone.

Two major works will be carried out by the District: the renewal of the old and dilapidated housing facilities and the development of some large and middle-sized commercial facilities; and the development of the industrial zones in the rear hill area as well as the construction of cultural and tourist facilities in the countryside.

	SGP (mil.)	primary ind. (mil.)	(%)	secondary ind. (mil.)	(%)	tertiary ind. (mil.)	(%)
Dongbeiwang	91.0	24.75	27	50.96	56	15.29	17
Wenquan	102.0	28.97	28	64.46	63	8.57	9
Yongfeng	147.0	19.99	14	110.25	75	16.76	11
Total	340.0	73.71	22	225.67	66	40.62	12

Table 5: Social Gross Production (SGP) in the study area, 1990 (at current prices, unit: yuan)

The Urban-Rural Spatial Layout Plan

Given Beijing's scattered urban pattern, there are three developmental levels which have been arranged in the Haidian District.

– *The central city proper*

The central city proper in Haidian includes the western and northwestern parts, except the open spaces, which are covered by 115 sq.km of built-up areas and have a population of about 1.4 million. The western sector is mainly built up by ministries, institutions of the central government, military headquarters; the northwestern sector, mainly by universities and research institutes. The land in both the west and northwest sectors has been fully urbanized. And according to the Beijing City Master Plan, the two commercial and cultural centres in the city will be built in the western sector of Gongzhufeng and in the northwestern part of Haidianzhen.

– *Two urban boundary clusters*

There are two urban boundary clusters – Qinghe and Xiyuan. The Qinghe cluster in the north is mainly planned for secondary industries, warehouses, housing and some institutions. It is planned to cover 20 sq.km and has already a population of about 100,000 inhabitants today. The Xiyuan cluster in the northwest, which was planned for universities, research institutes and some resi-

dential areas, covers 25 sq.km of land including some scenic spots. It has a total of 50,000 residents now. Each cluster's population will increase by about 200,000, and will be planned as a semi-independent new town in Beijing's suburbs. Some green open spaces between the central city proper and the two clusters have been planned, and should provide a better living environment.

– *The rural areas in the rear hill area*

The areas behind Xiaoxishan Hill and the north of Qinghe river have more than 200 sq.km rural land and a population of about 150,000, mostly peasants living in the countryside. The city's upper windward and water supply area is mainly agricultural. There are plenty of touristic and scenic resources. Apart from the developed Xiaoxishan Hill historic and cultural scenic spots, the planning of Nanshahe watershed tourist zone and the construction of Daoxianghu (the lake of fragrant rice) Suburban Park is going on. According to the Beijing City Master Plan (1991-2010), there are two leading towns – Yongfeng and Wenquan – that have been planned, as well as the designated town of Sujiatuo. Since there was no regional centre in the rear hill area, new commercial and service centres were proposed last year. The new centre is located at the junction of Wenquan, Beianhe and Sujiatuo, and covers about three sq.km of planned area. Another area that is rapidly growing is the BEZ's Yongfeng Intermediate Experiments Base (YIEB) located in the middle of Yongfeng township and planned to cover about two sq.km of land area. The function of YIEB is to support high-tech industrial production in Zhongguancun and SIIB. Today, more than 10 enterprises have been established; three of them on a large scale. However, because the YIEB is very near Qinghe and Xiyuan, the developmental trend would be to link the three places into one urban area in the future.

Some Issues in the Urbanization Process

– *Planning goals and social values*

There is a two level city planning and administrative system in Beijing. This means that city planning work is done by both the municipality and the district. The municipality and the district have different planning goals and social values concerning the urban development in Haidian District. The municipal planning office insists on planning goals which produce a socio-economic and environmental benefit, i.e., a comprehensive plan that should include environmental protection and development control, scenic-spot and water-resource preservation, infrastructure and social facilities improvement, land-use adjustment and rural-urban integration, etc.. From the district's point of view, however, urgent development pressure and varied economic factors mean that the main planning goal is to accelerate economic development using the locational advantage and valuable land resources to attract as many investments as possible to Haidian District.

– *Urban land-use plan, building height control and FAR*

Today, urban planning work in Haidian District includes land-use administration, old city renewal, commercial centres and housing construction, rural industry, town and village planning and development, etc. However, its work mainly focuses on how to open the land market to investors. Since nearly all of the land in the planned urban areas has been zoned by the Beijing City Master Plan, the building height control and floor area ratio (FAR) proposed by the Master Plan should be flexible if the district wants to further tap land-use potentials. Another possibility to prepare more land for the market is to access planned greenery open spaces and to suggest some projects with low FAR and less environmental impact in these areas. This means "attracting investments to the green areas and using funds to develop open space", a slogan used by the municipal government.

– *Infrastructure problems*

To develop the economy of Haidian District, one of the key issues is the infrastructure, especially concerning large-scale urban construction. Today, the road system in the hills' front areas is waiting to be upgraded, while the roads towards downtown and to the hills' rear are always jammed by traffic. There are only two roads going to the northern part of the district. A subway was planned more than 15 years ago but has not been put on the agenda. In recent years, the government has made a lot of efforts to improve urban infrastructures including the drainage system, central heating system, water and energy supply, telecommunications, and many other kinds of social facilities. However, there is still a large gap and a long way to go to reach sufficient urban amenities.

Case Studies on Small-Town Development in Beijing's Rural-Urban Belt

A Selected Case Study Area

This small-town case study was carried out by the Tsinghua University small-town team for many years. Then, the team decided to intensify research on Haidian District, and especially focus on the hills' rear areas. Therefore, based on the developmental conditions of Beijing's northwestern suburbs, a case study area was selected for central section research. The study area includes three townships in the middle part of Haidian District, Dongbeiwang, Yongfeng and Wenquan. The land of the three townships is made up of plains in the north and hills in the southwest, covers a total of 103.17 sq.km land, and had 73,958 permanent inhabitants in 1990. More than 50 per cent of the population depend on agriculture, and the density is 717 persons per square kilometre. There is a total of 55 natural villages, which are mainly located along the Beijing-Miyun Canal and Wenquan-Yiheyuan highways, and three villages with administrative seats of 3,000 population each. The study area includes SIIB, which was studied before, as well as the YIEB and the planned Wenquan central town.

Some Developmental Issues in the Case Study Areas

From the 1950s to 1980s, China's economy was controlled by the central planning system. This administrative economic approach also affected the people's initiative and the productive forces.

Living conditions in the study area are comparatively backward; especially transportation and tele-communications infrastructure. However, the municipal and district governments were economically strong enough to support development projects. Today, the people in this region want to improve their lives

through their own efforts and to develop a new rural economic zone by a "Richen Project". But in order to preserve scenic spots and water resources, large construction projects, especially factories which cause pollution, should be controlled to avoid environmental pollution. Taking all these factors into consideration, it is difficult for the local people to understand how development can take place.

Plans for the Wenquan central town behind the hills have existed since the Beijing City Master Plan of 1958, but since its location lacked regional attraction, no infrastructure projects have been carried out until today except for a small group of service buildings in the Wenquan crossing. In the 1960s, a factory for analytical instruments was built in the north of Wenquan township with the hope that it would become a leading enterprise in this region. As mentioned earlier, however, this idea failed because of the unfavourable conditions relating to infrastructure supply, investment shortage, construction control, and so on. Today, spatial development strategy in the case study area has been part of the Master Plan, the basic guideline until now.

Research Approach and Focal Points

Tsinghua University and the Haidian District Government signed a long-term Collaborative Agreement in September, 1993. According to the agreement, both sides will enter a long-term cooperation to develop the economy of Haidian and to benefit Tsinghua. The Institute of Architectural and Urban Studies at Tsinghua University has carried out some successful collaborative projects with the Haidian government over several years, and the small-town project will continue in the future.

The study includes both theoretical and practical approaches. Academic research includes the SIIB and rural-urban belt developmental observation, which looks into the urban-rural spatial transformation process in the study area on a long-term basis. The case study emerged as a result of village redevelopment planning and some rural housing projects in the study area. Research is also directed towards the township land use plan and rural-urban integration, industrial transformation, infrastructure management, green open space protection, as well as a sustainable development approach. Research will go beyond the year 2000 as a priority program of Tsinghua University for training, research, practice and demonstration.

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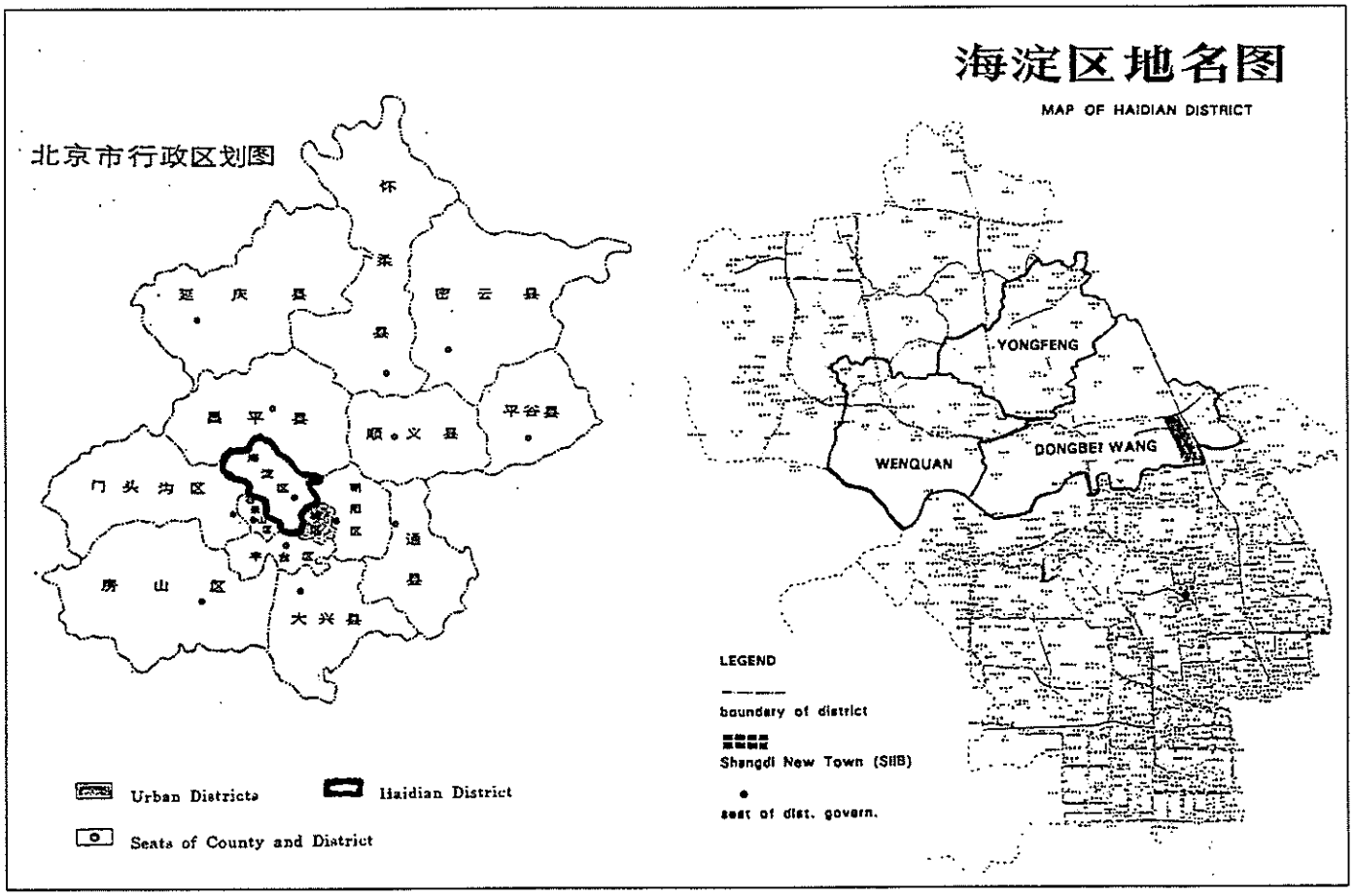
Beijing Statistic Bureau, Beijing Statistic Yearbook, 1991, 1992, 1993, 1994, Chinese Statistic Press



Beijing administration division map (1995)

Location of the case study area Haidian District

South Africa: Housing the Poor

The Reconstruction and Development Programme of the National Housing Subsidy Scheme

Eberhard Knapp

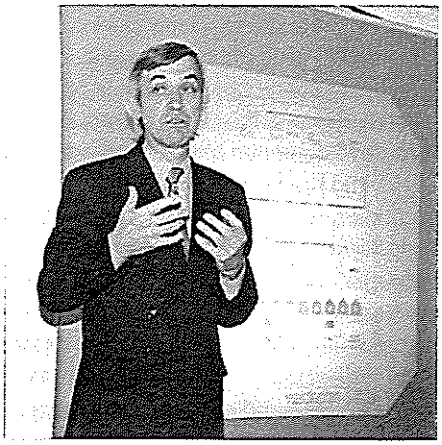
Zusammenfassung

Die neue demokratische Regierung in Südafrika hat die Beseitigung der Folgen der Apartheidpolitik zu ihrem Hauptregierungsprogramm gemacht: Abschaffung von Armut und Ungerechtigkeit.

Eines der wichtigsten Ziele dabei ist die Bereitstellung von einer Million Wohnungen in der ersten Regierungsperiode. Dies soll mit einem einzigartigen Wohnungsbau-Förderprogramm geschehen, das 70% der afrikanischen Haushalte zu Wohneigentum verhelfen soll.

Nach einer Einführung in das neue Regierungsprogramm (RDP) im Hinblick auf die Wohnungsversorgung und deren Ausgangssituation, die historischen Ungleichheiten im Zugang zu Wohnung und Infrastruktur, wird die Grundstruktur des Wohnungsbau-Förderprogramms (housing subsidy scheme) sowie der Rechtsrahmen beschrieben. Die Umsetzung des Programms wird anhand eines Projektvorschlags der Firmen Weidleplan (Stuttgart) und VDO architects (Pretoria) diskutiert.

Eberhard Knapp, born in South Africa, is an architect and town planner with Weidleplan Consulting in Stuttgart, Germany, where he managed the Branch office in Leipzig until 1995 and is now Regional Manager for Africa. Eberhard Knapp was associated with the Centre for Infrastructure Planning as a lecturer in housing and urban planning from 1986-90.



Abstract

The post-apartheid Government of South Africa has defined as one of its main goals the eradication of poverty and a redress of the imbalances which were a direct result of the apartheid system.

As one of the primary objectives, the authorities have defined the construction of 1 million houses within the first 5 years of democratic government. This goal is to be reached by means of a unique housing subsidy scheme, which entitles some 70% of South African households to a once-only home ownership subsidy.

The following will

- *describe the Reconstruction and Development Programme (RDP), especially as far as it concerns the provision of housing*
- *outline the historical inequalities in access to housing goods and services*
- *present the government's housing subsidy scheme*
- *present a proposal/design for a large-scale housing development, developed by Weidleplan Consulting (Stuttgart, Germany) and VDO architects (Pretoria, South Africa) on the basis of the RDP and the housing subsidy scheme.*

Historical Background

South Africa was first settled by Europeans, mainly from Holland, in the years following the arrival of the first Dutch settlers in Capetown in 1652. Initially, Capetown and its hinterland served mainly as a staging and replenishment post for ships travelling between Europe and the Far East. With the discovery of gold and other precious minerals, especially in the region of what is today Johannesburg, South Africa gained importance in its own right. When the Boer Wars ended in 1903, South Africa joined the British Empire, and the Union of South Africa was proclaimed in 1910.

South Africa was ruled by white pro-British politicians until 1948, when the (Afrikaner) Nationalist Party came into power for the first time. In the subsequent years, the Nationalist government formalized racial segregation and instituted what came to be known as the policy of apartheid.

This era came to an end in 1990 when Nelson Mandela was released from prison. The ensuing process of democratization culminated in the first fully democratic elections in South Africa on April 26th-28th, 1994.

The Reconstruction and Development Programme (RDP)

Both colonial and apartheid-era policies had brought about an overall economic situation which seriously disadvantaged the non-white communities of South Africa. Moreover, government spending and financial support of the public sector had been aimed largely at improving the living standards of the white population.

The biggest immediate challenge to the Government of National Unity, which came to power after the 1994 elections, is to improve living conditions for all South Africans and to redress historic inequalities. To this end, the government, and, particularly, the African National Congress, formulated the Reconstruction and Development Programme at a very early stage. This programme was to be the overall guiding principle for all activities of the government over the next few years.

What is the RDP?

- The RDP is an integrated, coherent, socio-economic policy framework. It seeks to mobilize the resources of South Africa and its people toward the final eradication of apartheid and the building of a democratic, non-racial and non-sexist future.
- Within the RDP-framework the government intends to develop detailed positions and a legislative programme of government.
- The RDP has been drawn up by an ANC-led alliance in consultation with other key mass organizations. A wide range of non-governmental organizations (NGOs) and research organizations assisted in the process.
- This process of consultation and joint policy formulation continued as the RDP was developed into an effective programme of government. Other key sectors of South African society, such as the business community, were consulted and encouraged to participate as fully as they could.
- Those organizations within civil society that participated in the development and formulation of the RDP will be encouraged by the government to be active in, and responsible for, the effective implementation of the RDP.

The Six Basic Principles of the RDP

1. The RDP constitutes an integrated and sustainable programme.
2. This programme is essentially centered on a people-driven process.
3. This programme and this people-driven process are closely bound up with peace and security for all.
4. As peace and security are established, South Africa will be able to embark upon nation-building.
5. Nation-building requires a link between reconstruction and development.
6. These five principles all depend on thorough democratization of South Africa.

In summary, the RDP is an integrated programme, based on the people, that intends to provide peace and security for all and to build the nation, link reconstruction and development, and deepen democracy.

Household Income Profiles

Income category (per month in Rand)	R 0-499	R 500-999	R 1000-1499	R 1500-2499	R 2500-3499	R 3500+
Percentage of households per income category (average for South Africa - 1994):						
Average	26.7%	22.8%	17.1%	11.7%	8.3%	13.4%
Blacks	31.9%	28.7%	20.4%	11.0%	3.3%	4.6%
Coloureds	8.8%	17.4%	18.6%	22.6%	12.2%	20.4%
Asians	3.3%	10.9%	14.9%	21.2%	13.0%	36.7%
Whites	1.2%	4.3%	4.9%	10.0%	11.6%	68.1%

Source: South African Advertising Research Foundation, AMPS Survey 1994

Affordable Contribution Towards Housing

Portion of income affordable (Between 10% and 25% of income not exceeding half of "disposable income for housing")	10%	10%	10%-19.7%	19.7%-25%	25%	25%+
Amount of income affordable	R 0-50	R 50-100	R 101-295	R 295-625	R 626-875	R 875 +
Amount left to purchase a dwelling after deducting R 113 for the operating and maintenance cost associated with home-ownership	R 0	R 0	R 0-182	R 183-512	R 513-762	R 762+

Table 1: Percentage of population which can afford housing

Inequality in Housing

When the Government of National Unity came to power in 1994, one of its most serious challenges was a large and steadily increasing housing backlog. It was estimated that there was a total shortfall of 2.6 million housing units with an additional demand of some 200,000 units accruing each year. Of the 2.6 million housing units, 700,000 were in the category of site-and-service housing, while 400,000 units were to replace existing hostel accommodation.

As Table 1 shows, some 66.6% of all South African households – but 81% of all black South African households compared to only 10% of white households – earn less than 1500 Rand (R) per month. Thus, the vast majority of black households will have difficulty purchasing a dwelling (with 60% of blacks having R 0 [zero] available for the purchase of dwellings!!).

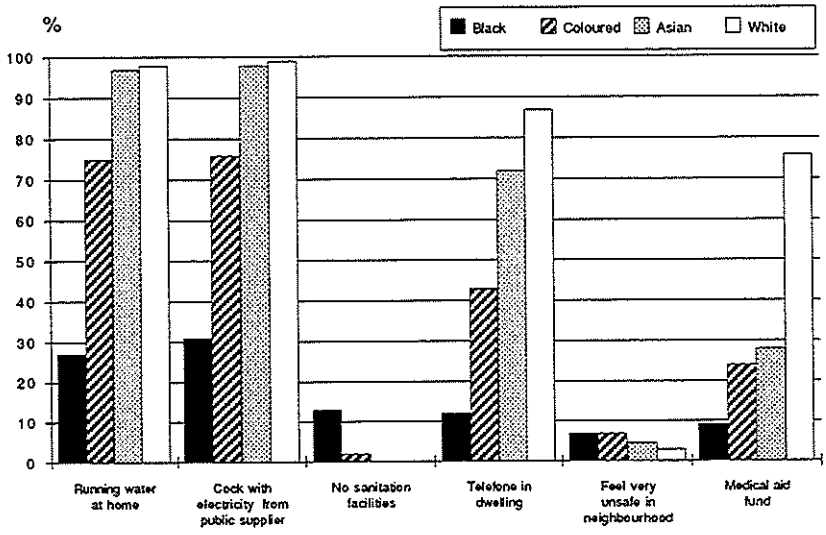


Figure 1: Services available: household survey October, 1994

The existing inequality is further highlighted by the findings of a household survey taken by the Central Statistical Services in October, 1994 (see Figure 1). Whereas nearly all white and asian households and a large majority of coloured households have in-house access to essential services (running water, electricity, sanitation facilities), there is a serious lack of these services in black households.

The Housing Accord

The RDP focused on housing as one of the major tasks to be completed as quickly as possible. The Government of National Unity formulated as one of its most prominent goals the completion of 1 million housing units from 1994 to 1999.

To this end, a Housing Accord was drawn up and accepted by all major players in October, 1994. This Accord, which was accepted by not only the national government and the international community, but also by the private sector (building materials industry, development organizations, the financial sector, etc.), the great unions, the provinces, and the homeless, stipulated the following:

- Housing's share of the total state budget is to be increased to 5% per annum.
- Housing delivery is to be increased on a sustainable basis to a peak level of 350,000 units per annum within a 5-year period. It was calculated that, if this is maintained over 10 years, the housing backlog will have fully disappeared.
- "Government strives for the establishment of viable, socially and economically integrated communities which are situated in areas allowing convenient access to economic opportunities, health, educational and social amenities and within which South Africa's people will have access on a progressive basis to: a permanent residential structure with secure tenure, ensuring privacy and providing adequate protection against the elements; and potable water, adequate sanitary facilities, including waste disposal and domestic electricity supply."

  Source: "The Housing Accord; Housing the Nation", Botshabelo, October, 1994
- It was further agreed that the government would aim to establish a sustainable housing process which would eventually enable all South Africans to secure housing within a safe and healthy environment and within viable communities in a manner which contributes positively to a non-racial, non-sexist, democratic and integrated society.

This Housing Accord clearly goes further than calling for the mere construction of physical shelter. Rather, it emphasizes the need for developing *viable communities*. This is of particular relevance in an urban society where, in the apartheid era, townships were developed to serve mainly as dormitories for the work force. All facilities such as recreational areas, shopping areas, etc. were traditionally located in "white" areas.

In order to implement the national housing policies, a broad-based institutional framework was created with the National Housing Board as an important neutral element (see Figure 2).

Institutional Framework for Housing

Housing is considered to be a "concurrent function" and is therefore the responsibility of both central and provincial governments. However, there is a distinctive difference in the focus of responsibility: whereas national government is largely concerned with the formulation of policy and the laying down of norms and standards, the actual implementation of housing policy and the construction of housing is a provincial function. In this sense, provincial legislation overrides national legislation. Urban development is thus also distinctly a provincial function.

A National Housing Board, consisting of 27 persons, advises the National Minister with respect to policy formulation. The members are:

- nominated by government (6)
- nominated by the National Housing Forum (6)
- nominated by both parties (6).

In addition, the chairpersons of the Provincial Housing Boards (formerly Regional Housing Boards) (9) are members of the Board.

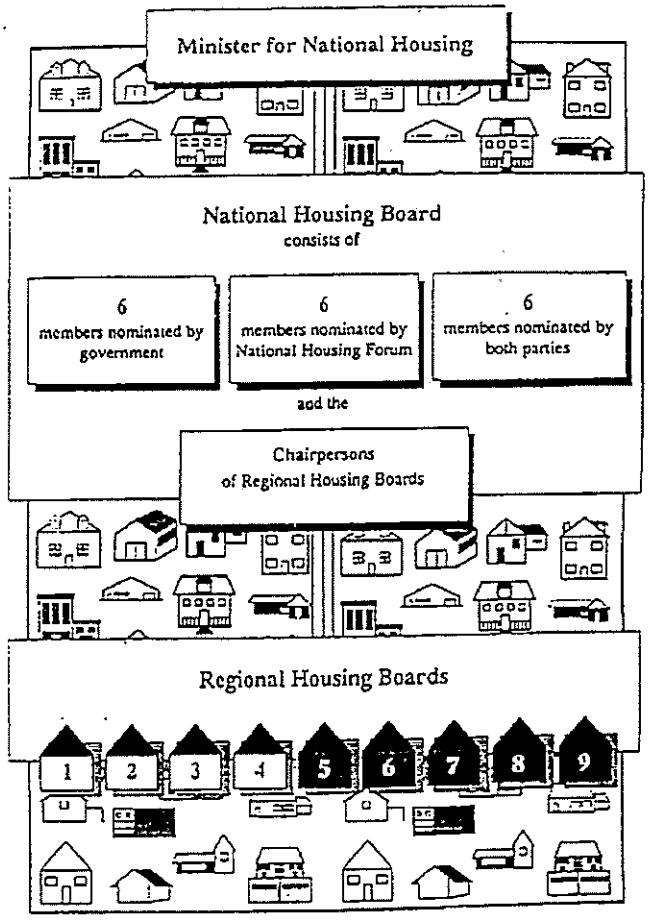


Figure 2: Institutional framework for housing

The Provincial Housing Boards are presently still responsible to the National Housing Board – which thereby acts as the intermediate agent between the National Department of Housing and the Provincial Housing Department (this institutional framework is due to change shortly). The National Housing Board reports to the Provincial Housing Board – and ultimately approves projects and the disbursement of subsidies.

The Housing Subsidy Scheme

As already described, the Government of National Unity defined as one of its primary goals the eradication of apartheid-era inequalities in housing provision. Taking into consideration the skewed income distribution (as Table 1 shows), it was accepted that it would be necessary to introduce an element of subsidization in order to enable the low income households to gain access to the housing market. The Housing Subsidy Scheme was introduced:

"There is good news on housing for households earning R3,500 or less a month. From 1 June, 1995, the government will help hundreds of thousands of people each year with housing.
At the heart of the new scheme are the subsidies and home loans. The government has made R 2.92 billion available for housing in 1995 - 80 percent more than in 1994. Almost all of this money will be used to help people buy or build basic homes with running water, sewerage and electricity.
But the government is not alone in offering assistance. They have signed an agreement with most of the banks called the Record of Understanding. It means the banks will give home loans to lower income earners again. For those who can afford credit, there will be 50000 new loans in the first year after 1 June, 1995.
The banks have also agreed to give consumers more protection under the Association of Mortgage Lenders' Code of Conduct. In it, the banks promise to work in a fair and transparent manner at all times. Everybody who applies for a home loan will be treated equally under clear guidelines on who can get a loan. If a person who applies does not qualify, the bank will tell them why their application was rejected. And all successful applicants will learn exactly what is expected of them in repaying the money.
Together with the builders, the banks and the government have agreed on another important piece of consumer protection: the Builders' Warranty Scheme. Builders who join the scheme promise to build properly and to take responsibility for what they have built.
In order to ensure the ongoing success of the new housing plan, there is also a challenge to every community in the country. It is the challenge of everyone taking responsibility for their homes and communities, to show outsiders that they can safely invest, to show investors that they can give home loans and create jobs. It is the challenge of Masakhane."
(Masakhane: literally "let us all build together")
Source: "Home Truths", governmental publication, 07.95

Details of the Housing Subsidy Scheme

- Subsidies are not granted as a cash payment. Rather, the government pays the subsidy for any qualifying household to the person or institution selling the house or building.
- Housing subsidies will be available to all beneficiaries who have not previously received government assistance in order to initially enable them to acquire homes or serviced sites.
- Past beneficiaries of subsidy schemes in respect of site and service projects will, however, be entitled to a supplementary amount (consolidation subsidy). The level of subsidy is linked to a household's total monthly income (before tax and deductions). The following amounts are made available:

R 15,000	R 0-800 per month
R 12,500	R 801-1,500 per month
R 9,500	R 1,501-2,500 per month
R 5,000	R 2,501-3,500 per month

- Subsidies are available only on houses costing not more than R 65,000.
- Subsidies are paid out by the National Housing Board in order to enable a qualifying beneficiary to acquire a residential property with secure tenure:
- at a cost that he or she can afford,
- of a standard that satisfies the minimum health and safety requirements applied by relevant authorities,
- from a choice of as many housing delivery options and opportunities as possible.

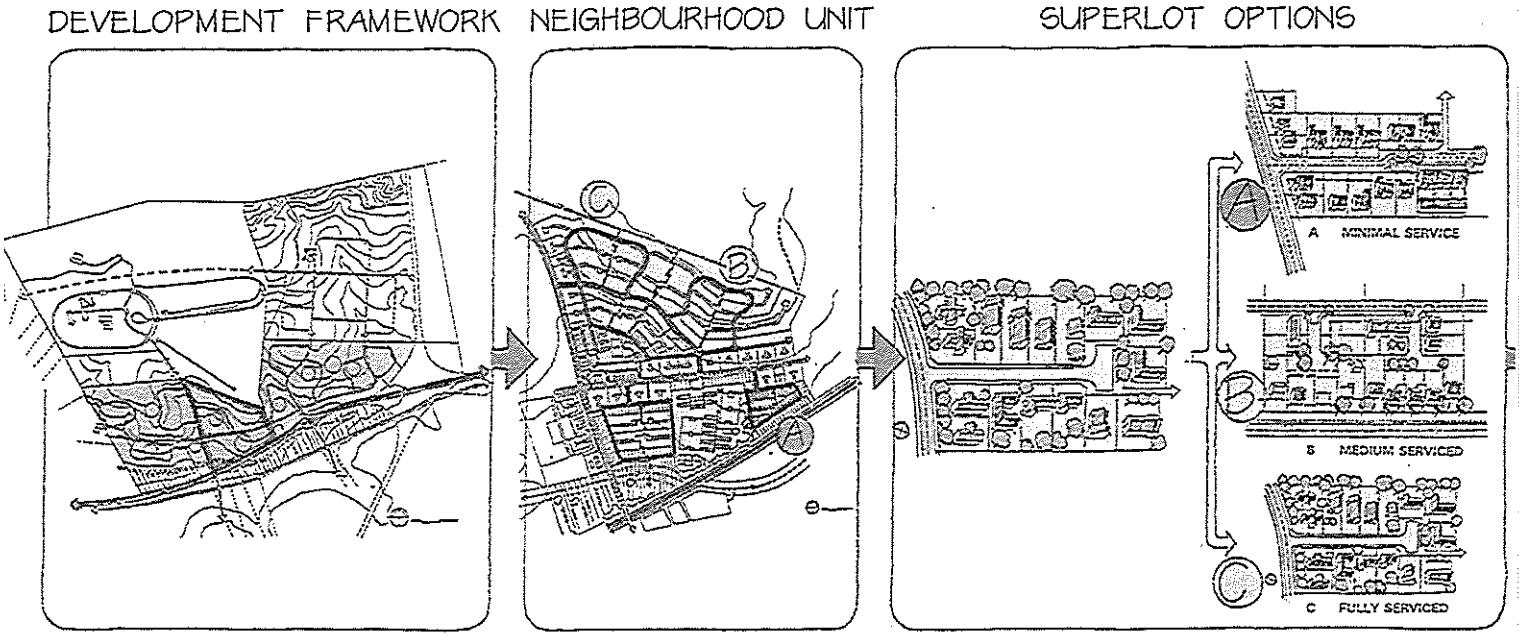
Project-Linked Subsidies

Low-cost housing units are usually to be developed on a large scale and in larger numbers, rather than individual units being built for individual households. Therefore, a specific project-linked subsidy was established to assist people within a community which wishes to build a number of houses as a group with the help of a property developer. The developer can be a private company, the local authority, or another public sector developer. On the basis of a signed "social compact" with the community, the property developer can make an application to the Provincial Housing Board for subsidies for all of the people who are to obtain houses as a result of the project. However, the subsidy will be in the name of the specific beneficiary and ownership will be individual. Project-linked subsidy applications are to be approved by the Provincial Housing Boards on the basis of certain principles:

- project initiators
- social compacts
- focus on the disadvantaged
- are existing rights being protected
- community participation
- social and economic benefits
- local initiative
- conditions conducive to development.

In order to facilitate the disbursement of available funds amongst the beneficiaries, further variations and subsidy forms have been developed, e.g. institutional subsidies, such as the cooperative subsidies or the social housing subsidies. Moreover, it was attempted to involve as far as possible the private sector in this national development effort through various agreements, e.g. the "Record of Understanding" with commercial banks. This would help to facilitate access to financial markets and to increase financial leverage of subsidies through home loans.

It is also interesting to note that the government placed specific emphasis on the need of communities to pay for services obtained (e.g., community facilities, electricity, water, etc.) in order to qualify for the National Housing Subsidy Scheme. As a form of protest during the apartheid era boycotts of rent and services charges was a commonly accepted practice. However, it is now nec-



Atteridgeville project: Proposal for the development process

essary that users pay for such services – and Government lays great emphasis on this aspect.

The Project: Atteridgeville

In 1994, the Building Industries Federation of South Africa (BIFSA) called for entries to an architectural competition which would develop solutions to the 'housing problem' on the basis of the national housing policy as outlined above. Weidleplan Consulting (Stuttgart), in collaboration with VDO architects (Pretoria) and a number of other South African professionals, drew up a proposal based on their international experience in the field of low-cost housing which was awarded a Second Prize in the competition (the First Prize being reserved for an already implemented project).

The goal of the project developed by Weidleplan was to show that it would be possible to construct adequate housing units with the subsidies made available in terms of the National Housing Subsidy Scheme. A detailed description of the project is contained in a separate brochure; the following outlines only some of the more important features.

The project, which was drawn up for a vacant piece of land reserved for housing purposes and adjacent to the existing town of Atteridgeville (near Pretoria), can briefly be described as follows:

- The overall objective in the urban and architectural design is to create a built environment which responds to the landscape in which it is located, to create legibility, identity, opportunity, communal and private spaces and variety in the built form.
- The urban layout hinges on the development framework which recognizes linkages to the local and city context; incorporates existing connections to the development area, an existing road on the land which forms the main connector of the proposed development and anticipates future expansion into adjacent land.
- For purposes of the competition, the neighbourhood was divided into areas A, B and C, which indicate different levels of infrastructure provision, to illustrate how households with varying incomes can get access to the development.

Area A: a minimum level of infrastructure and services; cost of 250 m^2 stand and infrastructure: R 8,890 (stand = plot)

Area B: a medium level of infrastructure and services; cost of 250 m^2 stand and infrastructure: R 16,582

Area C: fully serviced and full infrastructure; cost of 250 m^2 stand and infrastructure: R 19,270

This estimate includes the cost of sewage disposal by means of oxidation tanks and reed beds as an interim measure until municipal sewer connections are availabe. Assuming equal numbers of 250-sqm-stands in the three areas A, B and C, the total estimated cost of providing infrastructure would be R 7,500,000 for 1173 stands.

Current estimated costs for the provision of the basic housing unit types in the proposed project are as follows:

Shell unit	R 3,400
Core unit	R 22,000
Formal house	R 44,000

An example of financing within the subsidy allocations for the lowest and the highest income groups, respectively, are used to illustrate the viability of the project:

Income group: R 0 - R 800 p.m.

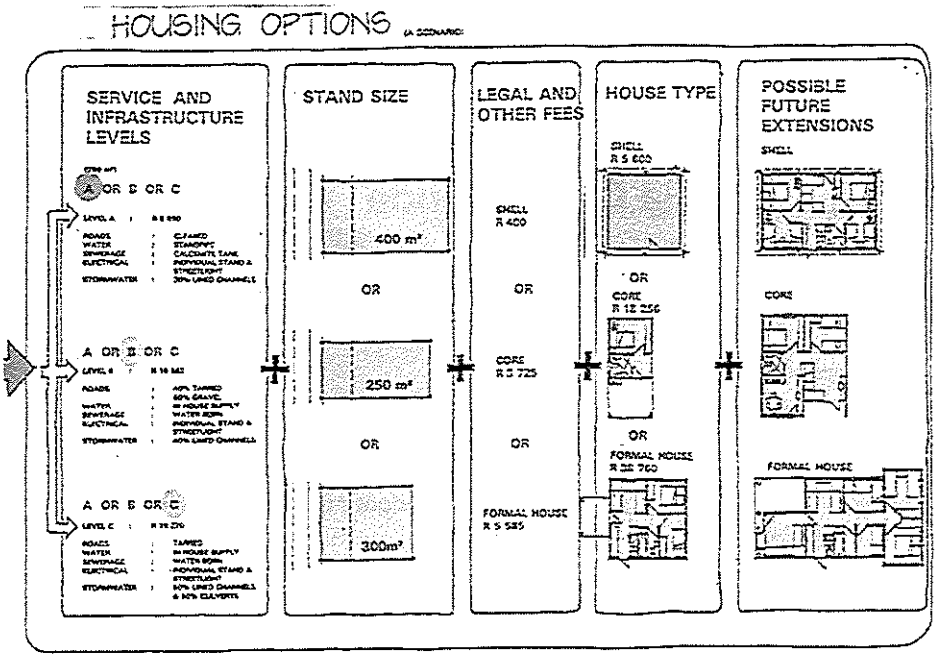
Subsidy	+ R 15,000
Infrastructure	- R 9,000
Access to credit (min)	+ R 0
Housing unit	+ R 6,000

This would mean that for the lowest income group, the household could get access to a stand with minimal services and still have some subsidy money left over to start a housing unit.

Income group: R 2 500 - R 3 500 p.m.

Subsidy	+ R 5,000
Infrastructure	- R 19,000
Access to credit (max)	+ R 62,000
Housing unit	+ R 48,000

In the highest income group qualifying for a subsidy, the household could get access to a fully serviced stand and obtain a loan for a formal house.



The key to the continued provision of infrastructure and housing units is cost recovery and repayment of loans. This is fundamentally linked to affordability and ability to pay – which is dependent upon income and opportunities for income generation. Therefore, payment should be enabled over time and could be linked to ownership and tenure over time. This could essentially happen in the two ways:

- *Infrastructure provision by local government*
  Cost recovery would be through rates and services charges. This alternative would add a land cost of R 600 per 250 sqm stands to the cost of a housing unit option and enable each household to start with a bigger and better unit.
- *Provision of infrastructure linked to cost recovery and ownership*
  Since land is in state ownership and it is proposed that infrastructure provision be financed by local government, the ownership of superlots and individual stands could be retained by the state until payment for full services, or upgrading to full services, has been achieved. Security of tenure can be vested in the household in perpetuity and in the value of improvements to the land. Differential rates and service charges could be applied to the different service level areas. These would allow for affordability levels attached to particular time frames for cost recovery and for the accumulation of funds for the upgrading of infrastructure. This mechanism ultimately creates equity in terms of infrastructure provision between all households in all areas.

Equity in terms of housing units is vested in the individual household and will be determined by affordability and upgrading over time, but is attainable through all four housing provision types.

Sustainability in Housing Development

The new South African Government of National Unity has realized that it will not be possible to "give" housing to all in need of housing. Rather, they have made it their aim to set in motion a mechanism by means of which initial "seed-capital" would ultimately lead to a situation whereby the people in need of housing would be enabled to house themselves.

Housing is not seen as a commodity but rather as part of a process, an integral part of a complex social and economic life. Thus, if housing is to be improved, the overall standard and quality of life needs to be improved. The "social compact" aims at ensuring this by stipulating that housing subsidy assistance should be closely linked to job-creation, training and transfer of skills, and thus, income-generation. In all instances, affordability is of paramount importance.

And responsibility. It is accepted that subsidisation can be a "once-only" remedy – and that ultimately all consumers need to pay for the goods and services the require. Thus an end to the apartheid-era rent- and consumer-boycotts is considered a precondition for access to the housing subsidy scheme.

In summary, the Government of National Unity aims at developing a broadly based mechanism by means of which many people can gradually, and essentially as result of their own ability, improve their overall quality of life – and thus also their actual housing situation on a sustainable basis.

Road Safety Management in Kampala City, Uganda

Frederick M. Were-Higenyi

Zusammenfassung

Einwohner- und Verkehrszunahme in Kampala City haben zu einem sprunghaften Anstieg von tödlichen Verkehrsunfällen geführt. Langzeituntersuchungen zeigen, daß Straßenzustand und Wetterbedingungen einen großen Einfluß auf die Unfallhäufigkeit haben, gefolgt von Fahrzeugzustand, jedoch in fast allen Fällen auch menschliches Versagen als Ursache zu nennen ist.

Auch Fußgänger – Alte, Kinder, Leute vom Land, mit schweren Lasten – und Radfahrer sind zunehmend unter den Verkehrsopfern sowie Passagiere der Sammeltaxis.

Mit Erfolg hat die Stadtverwaltung sich bereits des desolaten technischen Zustands des Straßennetzes angenommen und die Sicherheit mit Signalanlagen und nächtlicher Beleuchtung verbessert. Diese ergänzt der Autor insbesondere um nichttechnische Maßnahmen, wie Fahrzeugkontrollen, Aufklärung und Appelle an die Eigenverantwortung der Benutzer, sowie die Errichtung von speziellen Infrastrukturen für nichtmotorisierte Verkehrsteilnehmer (Fuß- und Radwege, Haltebuchten für Sammeltaxis etc.).

Frederick M. Were-Higenyi (Uganda, Master of Infrastructure Planning 1985) has spent many years as an engineer and manager on the local and regional level. He is currently Deputy Project Coordinator of the SWARP (South West Agricultural Rehabilitation Project), responsible for overall management, planning and implementation of rural feeder road rehabilitation and maintenance, and is also a lecturer at Makerere University.

Abstract

The high population and vehicular traffic growth rates of Kampala City have resulted in many traffic management problems; in particular, road safety aspects. There has been an increase in the number of fatal road accidents in the City over the past years. The causes of these road traffic accidents and the possible remedial measures are addressed in this paper.

The paper focuses on three main factors which have largely contributed to the increase in road traffic accidents; namely: road user, road / environmental and vehicle factors.

The paper also outlines the efforts being made by the City Authority to minimise the increasing number of road accidents in the City and other necessary remedial measures such as enforcement of traffic laws, road safety awareness campaigns, respect for the highway code, and upgrading of roads to meet vehicular traffic growth.

The need for the City Authority to properly plan, budget and control the development of the city to match the growing traffic and population has been cited in this paper as the only lasting means of minimising road traffic accidents in Kampala City.

Introduction

Rapidly increasing motorisation combined with deterioration in road standards due to lack of resources for proper maintenance has made Road Safety a major problem in many developing countries. As the degree of motorisation increases, the number of road casualties also increases. The high fatality rates on the order of 40-70 fatal accidents per 10,000 vehicles per annum, have made road accidents one of the leading causes of death and injuries in developing countries.

In Uganda, the loss of persons in road accidents is estimated in terms of GDP at 1-2% per annum. With an annual growth rate of 2-3% in GDP, accidents take away about 40% of this development effort. Studies have indicated that most of these accidents occur along highways and in urban areas. Kampala City, the capital of Uganda, has registered an increasing number of road traffic accidents in the last few years.

Just like many other capital cities in developing countries, the rapid growth in Kampala's population and a resurgence of economic activity have resulted in significant volumes of vehicular traffic and increased traffic congestion at key locations throughout the urban road network. The high population and vehicular growth rates coupled with poor traffic management have further resulted in a deterioration in road safety aspects which must be addressed seriously.

Table 1: Population growth for Uganda and Kampala City

Year	1959	1969	1980	1991	Growth Rate (1969-91)
Uganda	6,536,008	9,548,800	12,636,179	16,671,705	3.0 %
Kampala		330,700	458,500	774,200	4.8 %

Source: National Population Census Data Base - Entebbe

Statistical Data

Population

Kampala city is growing at a very fast rate compared to other cities in Uganda. Its population grew from 458,500 inhabitants in 1980 to about 774,000 inhabitants in 1991, with a population density of 4580 inhabitants per km^2. This depicts a growth rate of about 4.8% per annum, compared to the country's 3.0%. Table 1 shows the city's population growth trend. The population of the city is expected to reach 1.5 million in the year 2000. Jinja, the 2nd largest town in the country, had only 70,000 inhabitants in 1991.

Traffic Volumes

Many residents in Kampala City depend upon public transport. A large fleet of privately operated buses comprising 14-20 seat minibuses and a small number of 30-seat conventional buses provide service to nearly all locations within the city.

Kampala is located on the main "northern corridor" route between the Indian Ocean Ports and Central Africa. Road freight destined to or originating in Rwanda, North-Western Tanzania and Zaire passes through Kampala. Therefore, traffic volume through Kampala from these sources is quite significant.

The total traffic volume into the city increased from 70,000 vehicles/day in 1968 to 110,000 vehicles/day in 1988, an increase of about 5%. The average annual daily traffic volumes exceed 25,000 on certain primary roads, particularly those that link with the national road network, and others in the CBD area. It is projected that total traffic volume into the city will reach 175,000 vehicles/day in year 2000. Table 2 shows the estimated number of vehicles on the road in the whole country, of which a greater percentage commutes on Kampala roads. Table 3 shows an increase from 6,459 total vehicles registered in 1988, to 15,389 total vehicles registered in 1994. The vehicular growth rate in the city has not been proportional to the expansion of the road network. However, a greater part of the city's road traffic is composed of pedestrians and cyclists.

Accident Data

The City's road traffic accident data indicate a deterioration in road safety. Table 4 and table 5 indicate the status of accidents over the past years. The total number of road traffic accidents in the country increased from 5674 in 1990 to 7009 in 1993, an increase of 23.5%. A total of 992 persons were killed in 1993. Of the 7009 accidents in 1993, Kampala City accounted for 4834 (69%), in which 209 people were killed and 1134 injured. From January to October, 1994, a total of 6644 accidents occurred in Kampala, in which 990 persons were killed, and 4534 persons were injured.

Generally, the total number of accidents has been on the increase, especially in Kampala City, which has been leading in the number of road accidents throughout the country.

Table 6 compares persons killed in road accidents and those who die of AIDS. In 1993, a total of 992 people perished in road accidents (of which 209 were in Kampala) while a total of 768 people died of AIDS (of which 132 died at Mulago Hospital in Kampala). Although deaths due to road accidents seem to be higher than those due to AIDS, it does not mean that AIDS is not equally dangerous.

Table 2: Estimated number of vehicles on the road

Year	Trucks	Pick-ups	Buses	Mini Buses	Cars	Motor Cycles	Agric Tractor	Others	Total
1991	7,224	13,000	342	4,680	17,804	5,226	988	838	50,102
1992	7,397	13,791	382	5,283	18,998	6,213	1,222	981	54,262
1993	7,554	15,035	401	6,489	20,464	7,646	1,331	1,080	59,990
1994	7,957	17,776	464	8,809	24,208	12,142	1,541	1,150	74,048

Source: National Transport Data Base - Entebbe, 3rd March, 1995

Table 3: New registrations of vehicles by type, 1988-94

Vehicle Type	1988	1989	1990	1991	1992	1993	1994
Trucks	627	885	489	378	317	305	479
Pick-ups & 4-WD	1,767	2,156	1,711	1,689	1,441	1,934	3,192
Minibuses	430	608	903	895	837	1,470	2,515
Cars	1,829	1,683	740	1,153	1,550	1,846	3,949
Buses	89	52	21	36	57	41	71
Tractors				125	254	133	224
Motor Cycles	755	685	1,770	1,729	1,248	1,744	4,878
Other	962	747	722	147	160	118	81

Source: National transport Database, Ministry of Works Transport and Communications (MOWTC) 3rd March, 1995

Table 4: Road accidents and casualties from 1990 - 1993

Year	1990	1991	1992	1993	+/-	%
Fatal	407	512	483	686	203	42
Serious	1637	1709	1084	1256	172	15.9
Slight	1630	4039	3624	4885	1261	34.7
TOTAL	5674	6260	5191	7009	1818	34.59
Persons killed	778	638	660	992	332	50.3
Persons injured	3460	2821	2234	4370	2136	95.6
TOTAL	4238	3459	2894	5462	2562	88.7

Source: National Transport Data Base - Entebbe

Causes of Accidents in the City

The many causes of accidents in the city can be put into 3 categories:

- The Road User Factor
- Road and/or Environmental Factors and
- Vehicle Factors.

Long-term analysis of road accidents indicates that Road User Factor (human error) occurs in almost 100% of the cases, while the Road Condition / Environment Factor occurs in 50%, and Vehicle Condition in 25% of the cases. In most cases, it is a combination of factors.

The Road User Factor

Road users account for a greater percentage of road traffic accidents in Kampala. This is due to general disregard of the highway codes, speeding, improper overtaking leading to reckless driving, poor parking practices (especially in the central business area), driving under the influence of alcohol, poor health conditions, and fatigue (especially with commuter taxi drivers, who operate vehicles for about 15 hours a day with minimal rest).

Some drivers have been found to be unqualified and ignorant of traffic signs and regulations. Undisciplined drivers have also been a source of accidents. Undisciplined driving has been one of the basic reasons why commuter taxi drivers have been involved in unnecessary accidents. A taxi passenger was once heard saying "Everytime I enter a commuter minibus, I say a little prayer that God allows us to reach our destination safely. The drivers don't seem to care, the police only seem to be interested in bribes, so who else is there to place my life in, except God's hands ..."

Pedestrians have also been found to be under the influence of alcohol, and many commute with heavy luggage. They often do not understand traffic movement. The number of pedestrians killed in accidents averages above 60% of the total. Mostly children and old people from the rural areas have been involved in the accidents involving pedestrians. Wayward riding cyclists with a tendency to suddenly swing into the middle of the roads have also been a major cause of road accidents in the city. Poor eyesight of drivers and non respect for the requirements that public transport drivers must have regular medical examinations have also contributed heavily to road accidents.

Driving schools have tended to teach drivers vehicle operation, attaching little emphasis to the highway code, drivers' behaviour on the roads, or observance of road safety.

Road Factors / Environment Factors

Until recently, most of Kampala City's roads were rough and full of potholes. Some roads are still narrow (they are further narrowed by poor parking) and cannot accommodate the rapidly increasing traffic volume. Kampala's varying terrain has also been a factor in constraining urban growth and development of the road network. Primary roads are generally located in the natural channels that lie between the many hills in the Kampala area. Most of the 450-km-network, which includes 270 km of roads with paved surfaces, requires reconstruction and markings, especially at zebra crossings, humps, schools and hospitals. Lack of these has contributed much to road accidents; in particular, those involving pedestrians.

Many junctions in the city lack traffic signals. At the moment, only two junctions have operating signals, although their efficiency leaves a lot to be desired. According to police reports, a number of traffic accidents, mostly minor ones, occur at these junctions as a result of conflicts. A number of traffic accidents has been recorded at night due to the poor lighting system of the city roads. Most roads are not lit at all. Inadequate parking facilities have also caused many accidents in the city. Broken-down heavy trucks along the roads have also led to accidents.

An environmental factor directly influencing road accidents is topography. Overtaking is prohibited on slopes and in curves, but many drivers in their impatience defy the instructions and as such cause many accidents. Murram roads during the dry seasons create a lot of dust in the air, which in turn reduces visibility. During the rainy seasons, the same roads are slippery, causing vehicles to skid off the roads. Roaming cattle, sheep and goats on the roads in the outskirts of the city often interrupt traffic flow and in some cases cause accidents. Heavy rains often flood roads in low-lying areas, and flooding is aggravated by the roads' poor construction and maintenance. Such areas are difficult to drive through, and without road condition reports, drivers cause accidents at these spots.

The Vehicle Factor

Vehicle condition is a major contributor to road accidents in the city. Defective vehicles, aged vehicles, dangerously loaded vehicles are a source of accidents in the city. Traffic laws have also not been enforced in this respect. The influx of reconditioned and used vehicles

Table 5: Casualties along the "northern corridor" route

District	Total accidents				Persons killed				Persons injured			
	1992	1993	+/-	Oct.94	1992	1993	+/-	Oct.94	1992	1993	+/-	Oct.94
TORORO	79	128	+49		25	49	+24		24	121	+107	
IGANGA	195	188	-07		35	68	+33		150	291	+141	
JINJA	161	91	-79		52	31	-21		100	52	-48	
MUKONO	121	246	+125		49	156	+107		93	178	+85	
KAMPALA	**3770**	**4834**	**+1064**	**6644**	**155**	**209**	**+54**	**990**	**1360**	**1134**	**-126**	**4534**
MPIGI	69	122	+53		39	67	+28		66	122	+56	
MASAKA	49	149	+100		33	92	+59		34	159	+125	
RAKAI	85	12	-73		10	09	-01		15	01	-14	
MBARARA	44	95	+51		18	53	+35		39	265	+226	
KABALE	19	42	+23		08	14	+06		22	45	+23	
TOTAL	**4592**	**5912**	**+1320**		**424**	**748**	**+324**		**1903**	**2369**	**+466**	

Source: National Transport Data Base - Entebbe

Year	1989	1990	1991	1992	1993	1994
National Police Figures	740	778	589	660	992	
Kampala District Police Figures	231 (141P)	232 (143P)	156 (98P)	183 (105P)	209 (138P)	242** (132P)
Mulago Hospital Figures	93	66	103	86	132	149*
Aids Death	628	729	899	944	768	820*
TOTAL DEATHS IN MULAGO	3767	4010	5222	4600	5195	5883*

* Figures up to 8.12.94, ** up to June, Source: Road Safety Council - Kampala

Table 6: Road traffic accident deaths in comparison with Aids / other causes

into the country has also contributed to vehicles' ageing fast especially when driving overloaded on poorly maintained roads. Cases have been cited of vehicles manufactured in 1979 being imported into the country.

Remedial Measures Being Undertaken by Kampala City Council

Efforts have been recently made by Kampala City Council to address some of the road safety aspects. The section of Transportation Engineering under the City Engineer's Department is charged with the responsibility of providing adequate, efficient and safe facilities for both traffic flow and human movement.

The road safety remedial measures have been basically addressed by increasing the capacity of streets and junctions so as to enable more vehicles to use the streets more smoothly. Particular attention has been given to the following:

- Minor alterations to kerbs and islands, especially at junctions;
- Control of moving vehicles to reduce conflicts; e.g., by one-way streets, turn prohibitions or traffic signals;
- Control of standing vehicles; e.g., by imposing restrictions on waiting, loading / unloading and shopping, use of parking meters / cards and provision of more lay-bys and off-street parking facilities;
- Installation of traffic signals, traffic signs and road markings;
- Resealing of road surfaces and pavements to facilitate traffic flow;
- Installation of street lights along some major roads to improve night visibility.

As seen above, Kampala City Council can at best address the engineering measures; therefore, other remedial measures are necessary.

Other Remedial Measures

To further improve road safety in the city, the following aspects have to be addressed:

Enforcement

- Proper enforcement of the traffic laws,
- Proper and regular vehicle inspections,

Education

- Road safety awareness campaigns,
- Strengthening the Road Safety Council,

Engineering

- Construction of continuous and uninterrupted pedestrian and cycle paths with grade separated intersections on heavily trafficked roads,
- Construction of lay-bys for public transport vehicles, as well as safe connecting pathways for pedestrians or cyclists using these stops,
- Upgrading of roads from a lower to a higher standard in order to meet the increased traffic and safety requirements.

Conclusion

It is not easy to prevent road accidents, but remedial measures must be enforced to reduce them. It is therefore essential for Kampala City authority to plan and manage traffic in the city so as to reduce the increasing number of deaths from road accidents.

Sustainablility shall be achieved only if the city authority is able to properly plan and control city development so as to match both growing population and vehicular traffic. It must also institute an integrated approach to transportation management, including traffic management, parking, public transportation, transport infrastructure design and road safety. They should also adequately budget and fund for the regular maintenance of the road pavements and road facilities.

The authorities and organisations concerned should set forth public guidelines regarding the conduct of drivers and personnel in their control. However, self-responsibility, especially that of the drivers', is the only way road traffic accidents resulting from the predominant human error factor can be minimised.

Symposium participants, organizers and sponsors

The Privatization of Solid-Waste Management in Ghana

Frank Schweizer and Collins Kodjo Annoh

Zusammenfassung

Die Müllentsorgung in der Hauptstadt von Ghana, Accra, konnte mit dem zahlen- und flächenmäßigen Wachstum der Stadt nicht mehr nachkommen: sie sammelte nur noch von 45% der Haushalte regelmäßig den Müll ein, und konnte nur noch etwa 10% der Kosten decken. Die Folge war ein immer schlechterer Service und die illegale Müllentsorgung vor allem aus ärmeren Vierteln auf ungenutzte Grundstücke oder auf die Straße.

Nach ersten Pilotversuchen mit privaten Eselskarren, wurde ab 1990 eine Privatisierungsstrategie für die Müllentsorgung erarbeitet. Ziel ist eine Verbesserung des Services – vor allem für die unterversorgten ärmeren Stadtgebiete – und eine bessere Kostendeckung. Die Studie der Autoren zeigt dazu technische Alternativen auf – motorisierte und nicht-motorisierte – sowie die jeweiligen Kosten und Einzugsbereiche des Service.

Die ersten sichtbaren Erfolge der privaten Beteiligung an der Müllentsorgung sind nun mit einem übergreifenden Rechtsrahmen zu stützen und auszubauen.

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The paper was presented by Frank Schweizer.

Background

Socio-Economic Characteristics

The Accra Metropolitan Area covers about 225 sq.km of land. The population of Accra is currently estimated at about 1,410,000 inhabitants (based on the 1984 census). At an annual growth rate of about 3.7%, the projected population by the year 2000 will be about 1,750,000.

Lower-class residential
These are congested areas with high population densities ranging from 100-270 persons per hectare. It is estimated that about 74% of Accra's total population live in these areas. Annual population growth rates range over 5%. Generally, these areas have inadequate residential accesses and poor sanitation and drainage facilities.

Middle-class residential
These are mostly planned areas with population densities generally between 20-50 persons per hectare. A few areas including Adabraka, Asylum Down and North Kaneshie have densities from 100-160 persons per hectare. About 23% of Accra's population live in these areas, with annual growth rates ranging from 2.4%-5%. Most residents seem to be employed in the formal sector.

Upper-class residential
With about 3% of the total population, these areas have population densities below 50 persons per ha., and the lowest annual growth rates of up to 1.5%.

Waste Generation Characteristics

Domestic waste generation surveys carried out in the last quarter of 1991 and 1993 reveal the following generation characteristics for the different residential areas:

Lower-class areas
In these areas, specific waste generation rates average about 0.4 kg/capita/day and 0.8 l/capita/day. With a compostable fraction of about 90%, organic content is less than 50%, with over 40% inert materials. This explains the observed high densities of about 0.5 kg/l. Compost derived from the waste from these areas is very low in nutrient value. Recyclable materials, which include plastic, paper, unbroken bottles and metallic objects, constitute up to 7.6%.

Given an estimated total generated quantity of about 412 tons per day, the bulk of Accra's waste (estimated at 660 tons per day) is generated in these areas. Waste collected in these areas can be compacted up to 1.5 times, with only about 30% volume reduction, to achieve densities up to 600 kg per cu.m.

Middle-class areas
Waste generation rates are about 1.5-2.0 times the rates for lower-class areas and range from 0.6-0.76 kg/capita/day. The volume generated per capita also ranges from 2.6-3.2 l/capita/day; i.e., about 3-4 times the figure for the lower-class areas. Thus, the density of generated waste of about 0.24 kg/l is about 50% of that of the lower-class areas. The compostable portion ranges from 80-90%, with about 70% organic content. The recyclable portion constitutes between 8-17% by weight.

The estimated total quantity of generated waste in such areas is about 221 tons per day. The waste can be compacted up to 2.5 times with about 60% volume reduction.

Upper-class areas
In these areas, generation rates are 0.62 kg/cap/day and 2.95 l/day with densities averaging about 0.21 kg/l. The compostable portion is a little over 80%, with recyclables constituting up to 18%.

The estimated total quantity of waste is about 26 tons per day. The waste can be compacted up to 3.0 times with about 65-70% volume reduction.

Municipal solid waste collection by means of suitable compaction vehicles in the middle- and upper-class residential areas is desirable. It is also observed that with about 23.3% of the total urban population, the upper- and middle-class areas account for about 37.5% of the total waste generation in Accra. (Refer to Table 1 below).

Waste Disposal

Waste disposal practices, mostly in the lower- and the newly developed middle-/upper-class peripheral areas, leave a lot to be desired. Indiscriminate disposal into drains, public open spaces and private premises is not uncommon.

Efforts by the metropolitan authority to effectively manage the ever-increasing quantities of generated waste are not matched with a complementary effort by residents to adequately participate in collection services and also ensure the financial sustainability of such services.

Solid Waste Management in Accra

Provision of solid-waste management services in the city has been either door-to-door with compaction trucks in the upper-class low density areas, or with central containers at sanitary sites within the lower-class high density areas. Economic rates are charged for services in the upper-class areas. In 1987, the container service charged an annual levy of 600 Cedis (¢) per household (400 Cedis=1 US Dollar), the collection of which was about 5%. Complementary to the scheme was an arrangement to collect refuse using donkey-drawn carts in a few selected medium-income areas like Tesano.

The following were the annual levies proposed for container service in that period:

Year	Amount(¢)	% Recovery
1988	1,200	2.5%
1989	1,800	5.0%
1990	2,500	10.0%
1991	3,000	10.0%
1992	8,500	10.0%

Currently, it is estimated that approximately 660 tons of refuse mainly consisting of domestic waste (about 80%) are generated daily in the Accra Metropolitan Area.

The management of this waste has mostly been the responsibility of the Accra Metropolitan Assembly (A.M.A). This has resulted in a serious financial burden on the A.M.A. This is due to the fact that residents in the lower-class high density areas, which account for over 70% of the total generated waste, hardly contribute towards the financial sustainability of any service delivery.

In light of limited financial resources, the Waste Management Department (WMD) is only able to maintain regular services, by means of their trucks, for about 45% of the population. Thus, the remaining 35% have to be serviced periodically under a separate collection program by means of a payloader and a fleet of tipper trucks.

Currently, it is observed that the average quantity of refuse collected per month is about 17,400 cu.m, of which domestic waste (including refuse heaps within neighborhoods) constitutes about 82%. The remainder, about 18%, consists of commercial and industrial waste. Additionally, of the total figure, only about 13% is collected by means of compaction trucks under the door-to-door service.

Introduction of Private-Sector Management of Solid Waste

As a result of inadequate financial resource allocation by the AMA and the general financial ill-health of the department, the WMD is unable to cope with the ever-increasing quantities of waste generated within the city.

The general difficulty consists in adequately mobilizing the required revenue for services provided, particularly in the lower-/middle-class areas where the communal container system is operated.

Through the franchised management of solid waste, the WMD could derive additional financial resources from surtaxes paid by private operators. It could also be effective in playing its traditional role of facilitating, inspecting and law enforcement.

After four years of experimentation with private donkey carts, a workshop on privatization of solid-waste management was organized in the early 1990s with the objective of assessing the financial, technical, and human resource requirements of the Waste Management Department; and to determine the effectiveness of the department in the discharge

AREA	Lower-class	Middle-class	Upper-class	Accra
Total population (1994)	1,004,880	324,760	42,360	1,412,000
% Share	74%	23%	3%	100%
Waste generation per cap.(kg)	0.40	0.6-0.76	0.62	0.47
Density (kg/l)	0.50	0.24	0.21	0.43
% Composition (by weight)				
Organic	49.1	73.0	72.6	55.3
Inert	41.2	12.1	8.9	33.5
Plastic	2.7	3.0	4.0	2.8
Glass	0.4	1.2	2.0	0.6
Paper	3.5	6.0	7.2	4.2
Metals	0.7	1.7	2.8	1.0
Textiles	2.1	2.4	1.5	2.2
Rest	0.3	0.6	0.9	0.4
TOTAL	100%	100%	100%	100%
Compostable	90%	80-90%	80%	88.6%
Recyclable	7.6%	8-17%	18%	8.9%
Quantity/day (tons)	412.3	220.8	26.3	659.4
% Share	62.5%	33.5%	4.0%	100%

Table 1: Waste generation and disposal characteristics in Accra

of its duties in the area of environmental sanitation. The workshop concluded that the department should be supplemented in its efforts by the private sector.

Additionally, the A.M.A. was specifically to invite the private sector to participate in a joint venture in the delivery of the following services:

- door-to-door collection services in planned and unplanned areas;
- transportation of solid waste from collection areas to final disposal sites;
- commercial and institutional waste collection services.

Areas of Operation of Private Contractors

Until mid-1994, there were only 5 officially appointed contractors whose operations were mostly limited. Currently, with the appointment of 4 additional contractors, the number has increased to 9. The newly-appointed contractors are in various stages of mobilization and commencement of work. Additionally, 2 other operators, namely, Environmental Engineering and Akweteman Pilot Project, whose operations have been given increasing recognition by residents and the sub-Metropolitan Assembly, are yet to be officially appointed. These two operators have been supplementing the efforts of the WMD, particularly in the northwestern parts where coverage by the WMD is negligible.

It is observed that the operational areas of almost all the contractors, with the exception of three contractors, are mostly middle-/upper-class areas. This situation does not offer any opportunity to a contractor to readily extend his operations to the lower-class areas with cross subsidy from the upper-/medium-class areas.

Even where contractors are awarded lower-class areas as mentioned above, their operations invariably cover middle-/upper-income premises. The reasons for this observation include: Poor participation levels in the lower-class communities due to lack of interest and the availability of apparently more attractive options, like indiscriminate disposal, which hardly cost any service charges. In most lower-class communities where the communal container system operates parallel to any domiciliary services provided by a contractor, residents prefer this system, for which service charges range from ¢600 - ¢1,000 per month, instead of the latter services, which attract higher charges of up to ¢2,500 per month.

Results of Private-Sector Intervention

Three years after the introduction of the privatization program in 1991, the situation cannot be described as satisfactory.

– *Door-to-door service*

Generally, in the northwestern part of the metropolis covered by YAMA, the situation is satisfactory. Refuse collection in these areas started as a pilot project by means of donkey carts; firstly, to test the feasibility of such technology, and secondly, to complement the efforts of the WMD in the door-to-door collection program.

The contractor (YAMA) readily has access to a disposal site (abandoned Tesano Landfill) of very limited capacity for his operations in the Tesano area. In the other areas, the WMD provides support services by way of periodically emptying communal containers into which the contractor dumps collected refuse.

Results: These areas appear to be fairly clean. Residents seem to be satisfied with the regular services provided by the contractor.

– *Communal container sites*

In the old indigenous areas located in the south, notably, Chorkor, Korle Gonno, Accra Central and South Labadi, most residents prefer the continuous operation of the communal container system to the door-to-door, which was initially perceived to be provided by the contractors. The former system has lower service charges (¢20-50 per bin) amounting to ¢600-1,500 per household per month. Approved monthly charges for door-to-door range from ¢2,500-4,500 per family.

Given this background, some contractors (notably ZONTEC) operating in these areas have been authorised to manage the communal container sites and thereby operate the PAYD (Pay As You Dump) system. Unfortunately, given that residents rarely paid for such services previously and, in light of the nefarious activities of a few unscrupulous children who prefer to spend monies given by their parents for other purposes, it is becoming increasingly difficult for the contractors to adequately manage the problem of indiscriminate disposal in these areas. The contractor mostly operates door-to-door services in some selected middle-class neighborhoods within his area of jurisdiction.

Results: Refuse disposal in the old indigenous areas is not satisfactory. Indiscriminate disposal into drains and other public open spaces and along the beaches make some neighborhoods unsightly. Private premises and compounds in almost every community, however, are well swept and kept tidy most of the day.

As a result of the introduction of the PAYD scheme, residents attempt temporary storage of refuse on their premises for about 2-3 days before disposal, in order to reduce the total amount paid for dumping.

Diagnosis of Appropriateness of Technical Choice

The contractors mainly use two types of technology. These are the non-motorized and motorized systems.

Non-Motorized

These include wheelbarrows, donkey carts, communal bins and boarded pushcarts.

Wheelbarrow:
The wheelbarrow has a relatively limited capacity and haulage distance. Thus, individual houses are serviced on a daily basis. It is estimated that coverage is about 10-15 houses per trip with a haulage distance of up to 300 m to the nearest communal container and or open dumps at sanitary sites within lower-class neighborhoods.

This technology is labour-intensive and, given the density and quantity of domestic refuse generated per family, particularly within the low income areas, only a few trips could be made by any one operator in a day. The technology is therefore dependent on other intermediate

support services provided by means of the communal bin or open dumps which are periodically serviced.

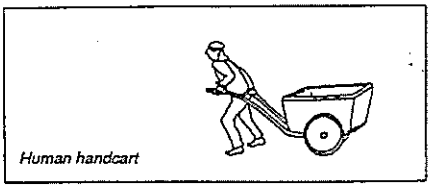
Given the limitations in terms of scope as mentioned elsewhere, this technology is deemed inappropriate except for areas within 300 m of temporary disposal sites. However, such distances can easily be covered by children who traditionally are responsible for refuse disposal. Thus, the use of this technology for refuse collection, particularly in the lower-class areas, might not lend itself for effective patronage by residents.

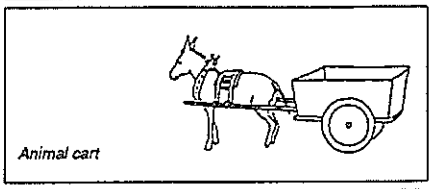
In the middle-class areas, given the absence of designated sanitary sites within neighborhoods, haulage distances are in excess of 1,000 m and therefore only a few houses can be serviced despite lower densities of generated refuse. Otherwise, most of the refuse collected by means of this technology are dumped at unauthorized placesl.

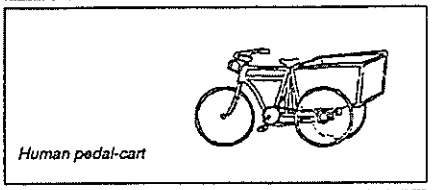
Boarded pushcart:
This is also labour-intensive and is mostly operated in the middle-class areas as a result of the absence of communal containers or sanitary sites for refuse disposal. Residents are encouraged to carry their filled refuse containers to central collection points where they are emptied into such carts. Dumping fees are charged up front as in the PAYD system.

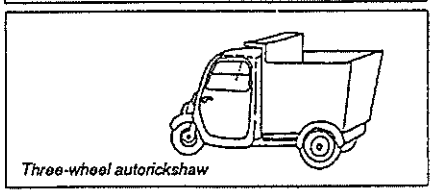
About 30-40 houses are serviced per day in two trips (morning and evening). Service charges are similar to those of the communal container system; i.e. ¢20-50 per bin. Given the long haulage distances as above, the comparative advantage of having twice the capacity of the wheelbarrow is lost in addition to carrying of refuse by residents. Again, collection services based on this technology encourage unauthorized dumping into drains and public open spaces. The technology may be suitable if within the neighborhood (up to 500 m) a suitable site is to be reclaimed; e.g. an extinct quarry pit or low-lying land.

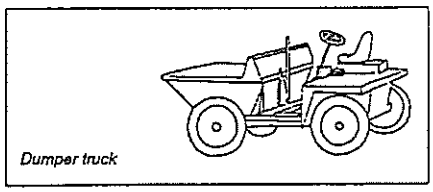
Donkey cart:
Mostly operated within the middle-/upper-class areas. This is an improvement on the boarded pushcart in terms of haulage. However, since it is mostly used for door-to-door services, it is not less labour intensive. Haulage distances


Human handcart


Animal cart


Human pedal-cart


Three-wheel autorickshaw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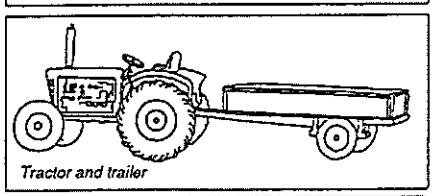
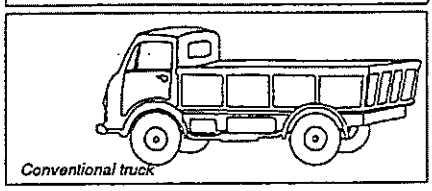
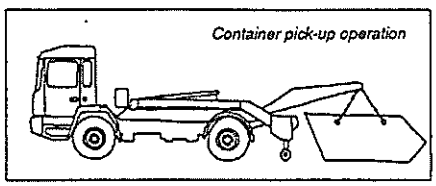
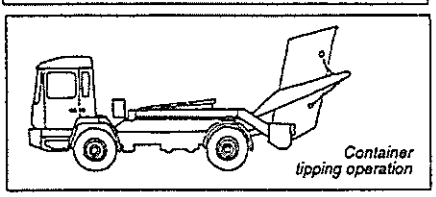

Tractor and trailer


Conventional truck

are up to 3,500 m and about 45-60 houses are served per day in a maximum of about 3 trips. The technology may also depend on other intermediate systems, like the communal bin or open dumps, when available, within neighborhoods in such areas. Otherwise, haulage distances in excess of 3,500 m make this technology unattractive.


Container pick-up operation


Container tipping operation

In the low-income areas, since most communal containers are provided within 400 m of individual houses, the use of this technology for door-to-door services may be unattractive, given the approved monthly service charges, which are about thrice those for the communal container system.

Communal container:
This is apparently the most desired technology in almost all the lower-class areas. It is the cheapest in terms of service charges and a larger number of houses (120-150 houses) is served per day. Haulage distances are within 15-20 km to final disposal sites (sanitary landfills). Given the characteristics of refuse generated within such areas, disposal for landfilling is most appropriate.

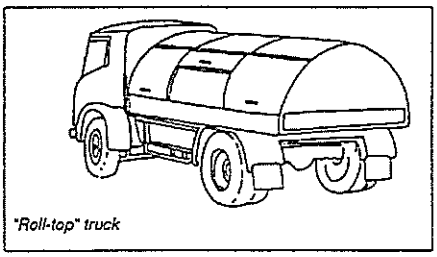
However, this system has been operated virtually as a free service since 1986 in most areas and therefore, patronage by residents may be undermined, given the PAYD scheme now in operation. This could explain the apparent increase in indiscriminate disposal and burning on premises accompanying the introduction of the PAYD.

In the middle-/upper-income areas, as a result of the lack of sanitary sites within neighborhoods, communal containers are at best either temporarily located on private premises or near neighborhood schools, with a catchment zone limited only to a few houses. Thus, areas outside this zone are not adequately serviced, which makes this technology inappropriate in terms of coverage.

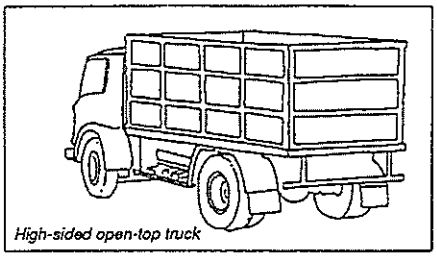
Motorized Systems

These include powered tillers, tractor/trailers, tipper trucks and compaction trucks.

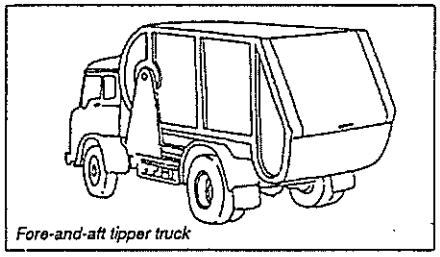
Powered tillers:
Powered tillers have boarded trailers which can service from 100-150 houses per day in 4-6 trips. Economic haulage distances are up to 5 km. Tractor/trailers have about 2-3 times the capacity of the powered tillers in terms of number of houses serviced and economic haulage distances. This gives these technologies a comparative advantage over the previous systems for services in middle-/upper income areas.



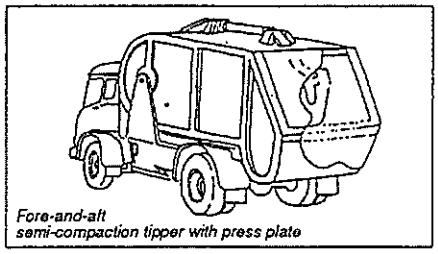
"Roll-top" truck



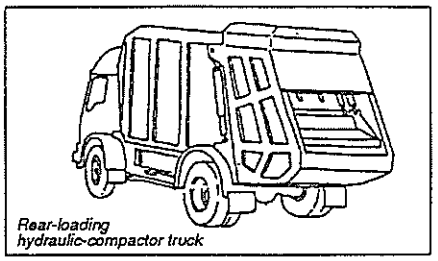
High-sided open-top truck



Fore-and-aft tipper truck



Fore-and-aft
semi-compaction tipper with press plate



Rear-loading
hydraulic-compactor truck

In the low-income areas, the advantages are eroded since this option also depends on the support services provided by means of the central container which is mostly within walking distances of about 400 m. Most contractors use the powered tiller.

Boarded tipper trucks:
Boarded tipper trucks may have capacities about 4-5 times that of the powered tiller and are therefore suitable for door-to-door collection in the middle-/upper-class areas, given the density of generated refuse and the attractive service charges levied. Only one contractor uses this technology.

However, given the higher density of generated refuse in the low-income areas, filled domestic bins are weighty and therefore inconvenient to be lifted high before emptying onto the truck. This therefore makes the technology inappropriate for door-to-door services in such areas. Additionally, as mentioned earlier, residents may prefer the communal container system.

Compaction trucks:
Compaction trucks, which seem to be the most suitable for operation in the middle-/upper-areas, have about 6-7 times the capacity of the powered tiller in terms of house coverage as a result of compaction. In the low-income areas, given the density of generated refuse, the comparative advantage of compaction is almost lost. This technology is therefore no different from the boarded tipper truck. Additionally, in terms of service charges, this is the most expensive option and therefore does not lend itself for use in lower-class areas. Currently, none of the initially appointed contractors uses this technology. geeWaste, a newly appointed contractor, has given indication of use of such technology.

A summary of the operational performance of the different technologies described above is presented in Table 2 below.

Comparative Financial Analysis

A comparative financial analysis indicates the following:

1. Average monthly cost per cu.m of collected waste is about ¢3,200 for both the door-to-door and container services provided by the WMD. This figure is about 12% more than that for the door-to-door services provided by the contractors.

2. Average monthly revenue per cu.m of collected waste is highest (about ¢5,000) for WMD door-to-door operations. This figure is about 37% more than that for the operations of the contractors.

3. On the average, the financial profitability of all door-to-door operations is above 25%. The level of profitability of the contractors' operations is about 50% of that of the WMD for this type of service. However, the analysis indicates that the container service is not financially viable.

4. Residents' default rate in paying for services provided is lowest (about 10%) for the operations of the contractors. The 30% default rate for the WMD door-to-door services may be

Technology	No. of houses per trip	Av. collection time	Av. no. trips per day	Economic haulage distance
Wheelbarrow	6-8	45 min	2x	0.4 km
Pushcart	15-20	1 hr	2x	0.5 km
Donkey cart	15-20	1 hr	3x	1.5 km
Powered tiller (1 ton)	20-30	2 hr	3x	3.0 km
Tractor/Trailer (3 tons)	60-70	2 hr	3x	5.0 km
Tipper truck (5 tons)	100-150	3 hr	2x	10.0 km
Truck/Container (5 tons)	150-200	1.4-2.3 d	3-5x/week	10.0 km

Table 2: Summary of technological choice of initial contractors

	Private contractors	Waste Management Department	Waste Management Department
Type of service	Door-to-door	Door-to-door	Communal container
Av. monthly tariff/container (¢)	2,500	5,000	230,000
Av. monthly cost/cu.m collected waste (¢)	2,850	3,200	3,200
Av. monthly rev./cu.m collected waste (¢)	3,650	5,000	400
% Profitability	28.1	56.3	-87.5
% Default	10	29	82
O & M: Labour costs	1:1.2	1:2.2	1:2.5

Table 3: Comparative financial analysis – performance evaluation

attributed to the adopted system of periodic billing of participating residents.

5. In relative terms, direct labour costs are about 20% more than operation and maintenance costs for the door-to-door operations of the contractors. The figure for WMD operations ranges from 120-150%.

(Refer also to Table 3)

Conclusions

Technically, private-sector participation has increased coverage under door-to-door services in the metropolis from about 2.2% (by WMD) to 7.3%. The technological choice to reach this target is deemed to be appropriate, given the current operational arrangements with the WMD, with regard to support services and disposal.

Financially, the private sector operates at relatively reduced costs and a lower default rate. Additionally, given the lower operating and direct labour cost ratios, the private sector has demonstrated its ability to optimally use limited resources to provide services efficiently.

Socially and economically, the private sector's solid-waste management service is most promising in the middle-to-upper-class areas, given the residents' readiness to participate in service provided at reasonable cost.

Prospects for Sustainable Service Delivery

Ghana is quickly moving towards a market economy and administrative decentralization. Efficient delivery of sustainable services is at the heart of this governing policy; hence, the strategic shift of production and services delivery away from the public sector. This radical shift towards the private sector is time-consuming and requires a systematic and concerted effort.

With private-sector participation in the provision of services, there are many feasible options. There is also the need for strong public sector institutions to ensure smooth transition and effective monitoring of the services to be provided.

The Accra Metropolitan Assembly has initiated the policy framework in its solid-waste management efforts and has, for the past decade, attempted in its own small way test cases of this shift towards the private sector. Given the dimensions of increasing population and geographical growth and the attendant challenges to the provision of city-wide solid waste management services, it is about time the city accelerated its strategy of expanding the delivery capacity for solid-waste collection, transport and disposal.

Solid-waste management through franchised or contracting arrangements with private-sector institutions offers a number of opportunities which have been adequately demonstrated by Accra's efforts.

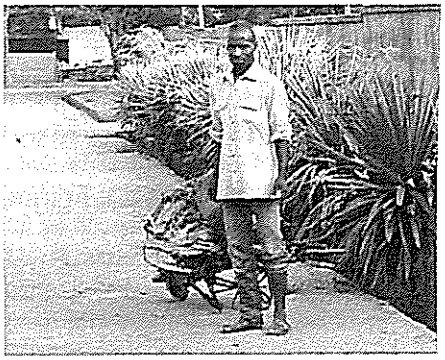
The main attributes are:
- increased efficiency and service coverage,
- reduced ratios of operating costs and increased revenue (increased profitability),
- low to moderate capital investment requirements.

In order to fully harness these opportunities, the private sector should be involved within the following framework:
- adequate governing policies and implementation strategies,
- adequate legislation and institutional support,
- access to credit for capital financing,
- increased public education and marketing of desirable waste-management practices to residents.

The Waste Management Department of the Accra Metropolitan Authority needs to formulate a sound policy on solid-waste management. This policy could place special emphasis on the role of the private sector, choice of technology and expected service coverage. An integrated and strategic solid-waste management plan covering the whole metropolis needs to be prepared. This plan would establish the governing principles and the regulatory framework for service delivery, as well as define implementation strategies and financing arrangements. The overriding strategy is to build on the strength of the efforts of the WMD over the decade in an attempt to ensure sustainable provision of efficient waste management services to the residents of Accra.

Increase of productivity in door-to-door collection:

(Photos: Frank Schweizer)



1. *One-man-contractor with wheelbarrow 6-8 houses/trip, max. distance 300-400 m*

2. *Donkey cart, one axel 15-20 houses/ trip, max. distance 3500 m*

3. *Donkey cart, two axels, 30-40 houses/ trip, max. distance 3500 m*

4. *Powered tiller 40-50 houses/ trip, max. distance 5000 m*

Energy-Efficient Building Design in a Tropical Climate
A Model Mass Housing Project in Madras, India

Chitra Chidambaram and Duvvuri Subbalakshmi

Zusammenfassung

Die Autoren beschreiben ein Modellprojekt für untere und mittlere Einkommensgruppen, welches unter dem besonderen Aspekt des energiesparenden Bauens und Wohnens in tropischem Klima entwickelt wurde.

Für die Klimauntersuchungen dieses Modellprojekts unter der Schirmherrschaft der indischen Housing and Urban Development Corporation wurde der Standort Madras mit feucht-heißem Küstenklima zugrunde gelegt.

Die untersuchten Entwurfsvariablen und ihr Einfluß auf den Energieverbrauch umfassen u.a. Einwohnerdichte, Bebauungstyp, Lage, Form und Textur der Gebäude, die Orientierung der Gebäude, Bildung von Häusergruppen, Gestaltung und Bepflanzung der Außenanlagen, Baumaterial, Fertigungsmethoden und besondere Entwurfselemente des passiven Sonnenschutzes.

Die Autoren empfehlen ähnliche Studien für andere Klimaregionen, um ein mikroklimabezogenes Entwurfsvokabular für energiesparendes Bauen und Wohnen zu entwickeln.

Chitra Chidambaram (India, Master of Infrastructure Planning 1993) is a lecturer in town planning, design and building construction at the Vsatukala Academy, School of Architecture and Design.

Duvvuri Subbalakshmi is an architecit and presently practising as a free-lance consultant in New Delhi.

Abstract

For sustainable development of any region, efficient utilization of energy is imperative. To achieve this, the climatic factors of the region should be exploited advantageously.

The paper describes a model mass housing project under the auspices of the HUDCO (Housing and Urban Development Corporation, India). This involved the development of relevant concepts of solar passive architecture and their application for a particular climate. For collecting data and working out details, the city of Madras in South India, with its warm humid climate, was chosen.

The design parameters include climate (radiation, temperature, humidity, rainfall, wind), terrain, hydro-geology, urban setting, economics, energy conservation, spatial organization, socio-cultural context and environmental aspects. The implications of these parameters for the design are analyzed.

The variables studied include population density, housing type, siting, building form and fabric, orientation of building, grouping in clusters, landscaping, construction material and method and element design. Novel concepts for solar cooling, such as the thermal chimney, are also proposed. The design evolved improves occupant comfort and environmental quality in building and outdoor spaces. It also minimizes dependence on conventional energy sources.

Similar studies can be carried out for different climatic regions to develop micro-climatic vocabularies for energy-efficient building design.

Introduction

The building industry consumes vast resources of energy through all phases of development – starting from the production of building materials, through construction and the use of the building to its maintenance. Further, architects today employ mechanical and electrical means to control the climatic environment in buildings they design. This increases the need for the already scarce and costly energy supply. Besides, it also increases the building's initial cost and other environmental drawbacks like noise and pollution. It is therefore necessary that responsible professionals design buildings that are energy-efficient and achieve natural climatic control.

Between the latitudes of 30°N and 30°S, within which most developing countries lie, use of solar passive systems could provide a possible solution to thermal comfort with a minimum expenditure of conventional energy. This would call for climate-responsive planning, which requires detailed zoning of different climates, the study of each zone in general and of the place in particular for generating and applying specific passive strategies.

This paper discusses the design ideas for a well-defined site in Madras, South India, with its warm humid climate. Though this work has specific reference to Madras, it should be of value for other cities located in the same climatic zone. Since this design exercise is carried out as an entry to a design idea competition, its scope is rather limited.

The main objectives include:
- To generate energy-efficient design ideas and solar passive strategies;
- To illustrate these ideas through a model housing scheme with due consideration to all housing design parameters;
- To establish norms and standards for climate-responsive planning in the context.

Methodology

In the search for design ideas, climate is placed as a central guiding factor. However, climate by itself does not determine built environment. Design strategies must integrate social and cultural patterns and be economical and technologically feasible. They must also address today's critical issues of ecology and energy conservation – all this around the locus of climate. The broad design parameters considered are:
- Climate
- Terrain
- Soil
- Urban setting
- Low cost
- Energy conservation
- Environmental aspects
- Socio-cultural context
- Spatial organization

Each of these parameters is analysed and its implications for the design discussed. Design decisions are made based on these discussions, and are singly or jointly illustrated in the proposed housing scheme.

Climate Profile

Madras is a city located on the eastern coastal tract of southern India (Fig. 1). It falls within the warm-humid zone and is close to the equator. Close to the sea, it has a uniform yearly and daily climate with high temperatures and unpleasant humidity. During the rainy season, the weather is very much like that of the warm and humid season. During summer, the days are hot with high humidity. The city has almost no winter; the sky is always bright and glaring. The eastern and western sides receive more radiation as the sun's rays strike them directly (Madras is on a low latitude of 13°N). The prevailing wind blows from the south and south-east almost all year round. The city experiences short spells of heavy cyclonic rains in October and November. This causes heavy flooding in the clayey parts of the city. The humid climate also promotes fungal growth and pests in the region.

The daily climate is tropical with the mornings pleasant. The temperature steadily rises until 2 pm with sultry weather. Relief from the oppressive climate only comes in the late afternoon when the sea breeze sets in. The best sites in Madras are those that are exposed to breezes all the time. The most salient features of the houses in this region is their openness – buildings designed to have breeze and natural air currents. Balconies, large windows, deep verandas and high ceilings are all designed to let the breeze in.

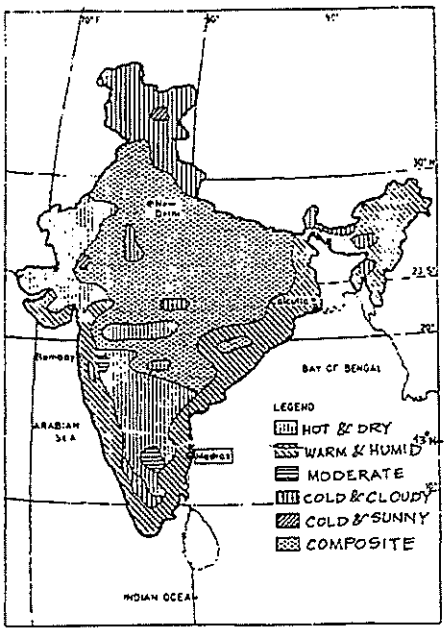


Fig. 1 *Map showing climatic zones of India and the location of Madras*

Site and Design Requirements

A site measuring about 2.0 hectares was used for the design exercise. The location of the site is assumed at a prime centre, with work areas close by. Therefore, the maximum number of dwelling units that can be accommodated with the objectives of solar passive system is an important criterion. The housing layout must be such that 60% catters to middle income groups (MIG) and 40% to lower income groups (LIG). The provision of 2 rooms and a living/dining, kitchen, toilet is envisaged for MIG; while 1 room, a kitchenette, bath and WC is foreseen for LIG. Provision for additional rooms at a later stage for LIG is made. Infrastructure facilities like water supply main, sewer line and electrical connection are assumed to be available along the main road.

Site Planning

Climate control commences with community planning on the neighbourhood scale. It determines the way buildings are sited, oriented and agglomerated in groups. The main passive strategies are directed at
1. Shading and protection from exposure to external heat gain;
2. Increase in breeze and air movement;
3. Using landscape and vegetation to modify the microclimate.

For each of these, in turn, several measures are adopted:

1. Shading and protection from external heat gain

- Floors are stacked to reduce exposure of roofs, which contribute to much of the heat gained by the building. This is also favourable from the breeze point of view (Fig. 2a).
- Row housing oriented north-south to minimize east-west wall exposures, which gain considerable heat at low latitudes where the sun's rays strike directly (Fig. 2b).

2. Increased air movement

- Buildings are oriented for breezes blowing from the south/south-east during much of the year. To avoid monotonous buildings, their orientations are varied between south/south-east (Fig 3a).
- Staggered buildings expose more facades to breezes. Building forms are also chosen to draw the air flow into the buildings (Fig. 3b).
- Spacing of buildings is determined by air flow. Where houses are

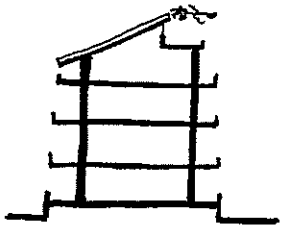


Fig. 2a Stacked floor

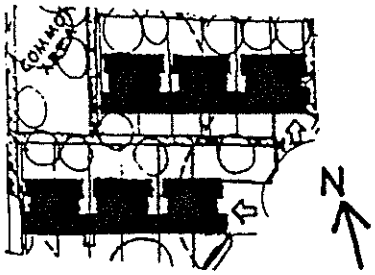


Fig. 2b Row housing

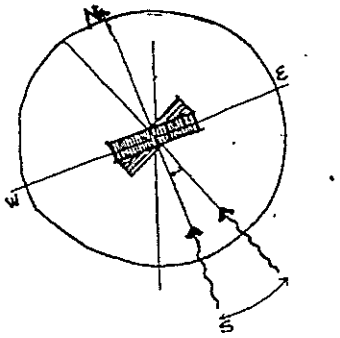


Fig. 3a Orientation of breeze

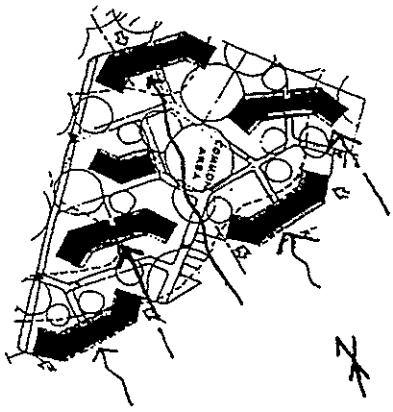


Fig. 3b Staggering for breeze

closed, blocking the flow through them, the flow component that goes over the building becomes important. In closely spaced buildings, flows skim over, while in very large spacings, they are close to isolated regimes. The design chooses a spacing wherein the blocks mutually accelerate flows and increase air movement (Fig. 3c).

3. *Landscaping and vegetation*

- Shade trees with dense foliage are used to shade east and west exposed walls.
- High canopy trees are planted for ground shading without affecting breeze flow.
- Hedges are used to direct breeze flow with the buildings (Fig. 4a).
- Vegetative ground cover adjoining buildings reduces reflection of heat into the building (Fig. 4b).

The proposed site plan (Fig. 5) gives full primacy to the climatological aspects. All dwelling units in the development are walk-up apartments with an ideal orientation for minimum insulation and maximum air movement. The spatial pattern combining the homes, pathways and open spaces with trees results from staggering and slightly offsetting the orientation between south and south-east, thus forming strips of varying dimensions. Access to the plot is from both the adjoining roads. Internal roads are kept to the periphery. They are well shaded and provide convenient access to grouped parking under buildings. The central community spine is exclusively pedestrian. The grouping of buildings is based on the socio-economic categories prevalent in the context. (The lower-income groups prefer to remain closer to the ground, and hence are limited to ground + 2 storeys). The vegetation comprises native trees and shrubs, identified and marked at every location. The open spaces also include sand pits and sand-filled trenches to allow rain-water percolation and replenishment of ground water. This would also reduce floods in the clayed parts of the area. Community facilities like a nursery school, a community hall, plant nursery, club and daily shopping, are centrally located in the plan.

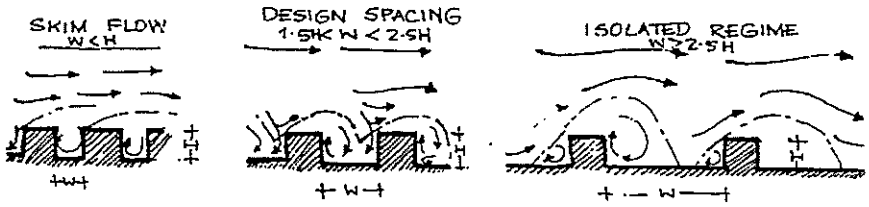


Fig. 3c Flow regimes around buildings

Land use break-up as a percentage of total area is as follows:

Residential	51%
Circulation	26%
Open spaces	18%
Public areas	5%

The layout accommodates 177 housing units on 2 hectares at a gross density of 88 dwellings/hectare. With 50% of the land residential, net population density is 175 persons/ hectare, with ground + 2/3 storeyed buildings at a maximum plot coverage of 48% and a Floor Area Ratio (F.A.R.) of 1.75.

Unit Plans

The main passive strategies at the unit level comprise:

1. Energy conservation
   - Insulation and protection from external heat gain
   - Low energy consumption
2. Increase in ventilation
3. External living

1. *Energy conservation*

- *Insulation and protection from external heat gain*

The different housing categories illustrate different measures singly or jointly to satisfy the need for insulation. The measures include:

- Thin walls, as the climate has less diurnal variation and no heat is required to be stored in the walling material.
- Building materials with good thermal properties are used. Flyash, which has better thermal properties than brick, cement, or steel, has been extensively used in the scheme for masonry, roofs, paving etc.
- Hollow flyash bricks are used for east-west exposed walls.
- Sloped roofs are proposed to reduce heat intensity, with country tiles on top for insulation (Fig. 6).
- Flat terraces are shaded with coir mats and plant pergolas.
- External surfaces are painted white

to reflect heat back to the exterior.
- Deep overhangs shade the openings and keep away lashing rains.

– *Low energy consumption*

Low-energy materials are generally used in the buildings. Aluminium or PVC fail to satisfy the requirement. Flyash conversion as a building material requires little energy. Its local availability also saves transportation. Low energy construction techniques are adopted. Simple structure and grouped services not only reduce cost but also energy consumption. Other measures include avoiding external plaster, and using simple red oxide flooring. The buildings are limited to ground + 2 or ground + 3 storeys to avoid the lifts and energy required for high-rise buildings.

2. Increasing ventilation

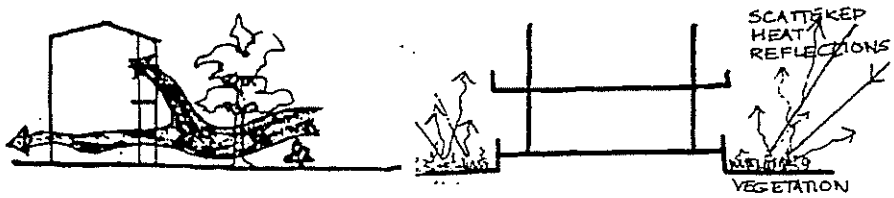
The housing demonstrates varied concepts for increased ventilation, ranging from conventional cross ventilation to the more novel thermal chimneys.

– *Cross ventilation:*

The buildings of higher MIGs are planned to be one room deep to enable cross ventilation through the spaces. Windows on both sides are large for natural cooling and ideal for hot, humid conditions (Fig. 7a).

– *Clearstorey:*

This passive measure provides roof level outlets enabling quick and easy outflow of hot air near the ceiling. The outflow is replenished by fresh incoming air, bringing relief in the humid climate. (Fig. 7b)



Figs. 4 (a) and (b) *Vegetation to modify microclimate*

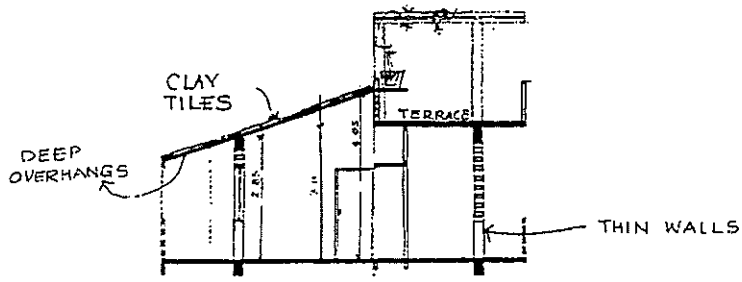


Fig. 6 *Protective measures from external heat gain*

– *Thermal chimney:*

For buildings two rooms deep, thermal chimneys are used to create draughts. The well-insulated service duct also serves as an exhaust duct using the chimney principle. It is covered by a glass slab on top, inclined to obtain maximum summer radiation. An expanded metal mesh painted black is installed below the glass to absorb radiation and add heat to the rising air in the chimney. The hot air is released at the top, drawing the stale air of the entire house through a centrally located horizontal duct below the ceiling on every floor. Suction, in turn, draws outside air through the external wall openings and enhances air circulation (Figs. 7c & 7d).

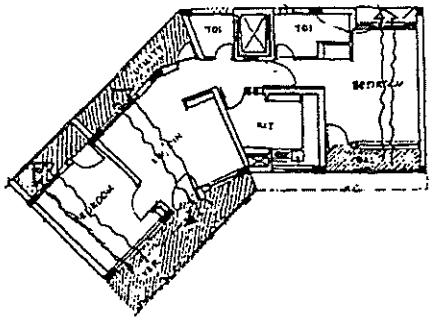


Fig. 7a *Cross ventilation*

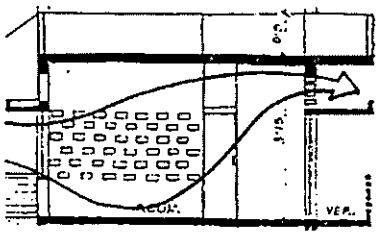


Fig. 7b *Clearstorey*

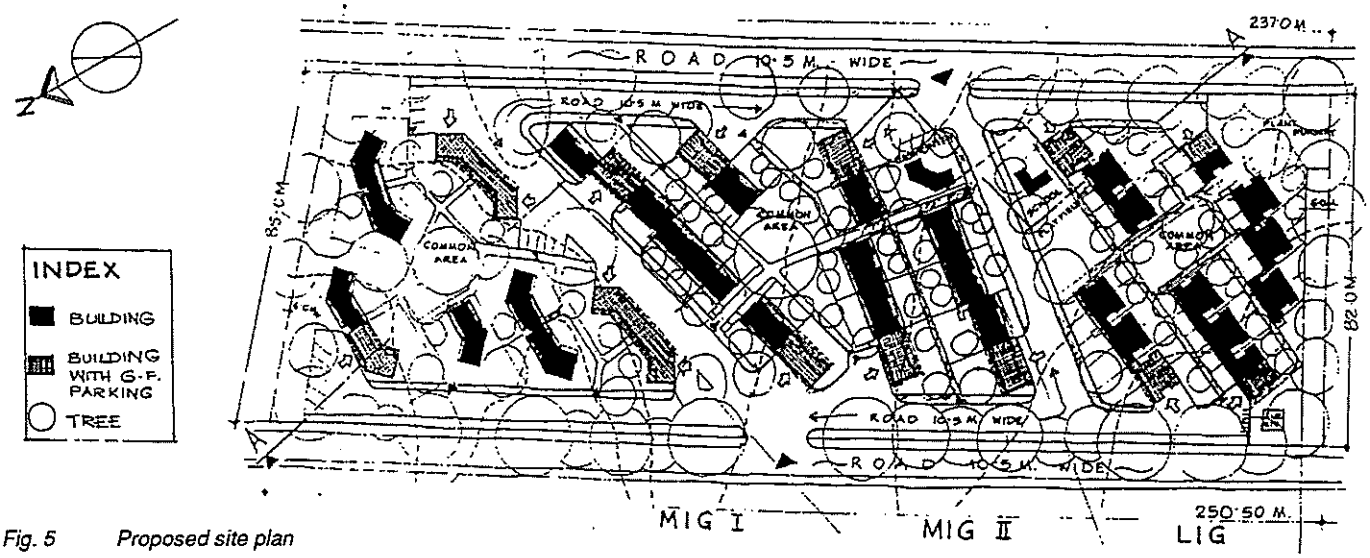
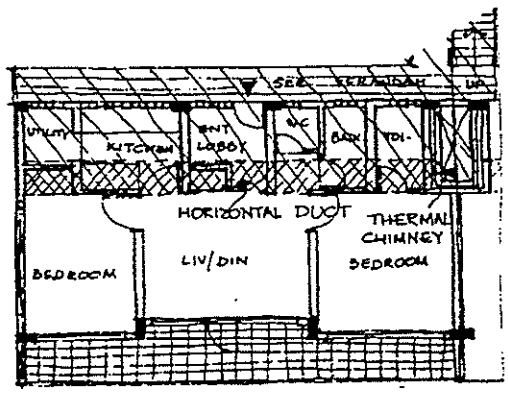
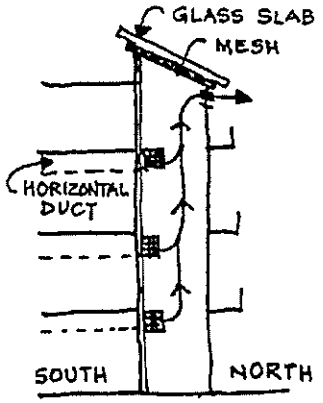
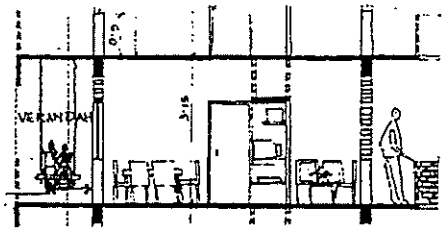


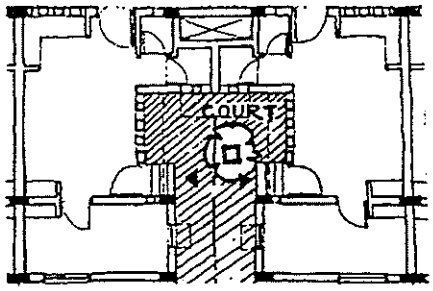
Fig. 5 *Proposed site plan*





Figs. 7 (c) and (d) *Thermal chimney*





Figs. 8 (a) and (b) *External living spaces*

3. *External living*

Extensive outdoor living spaces (in the form of balconies and courtyards) are provided on the windward sides for all housing categories. These are shaded with deep overhangs/ pergolas with creepers. Roof terraces, flat in parts, cater to outdoor living and are also shaded using coir mats or creepers supported on locally available bamboo framework. These outdoor spaces are particularly relevant to the living habits of the society. A typical Madrasi middle-aged couple sitting on a swing in the open verandah, enjoying a sip of coffee from a traditional steel tumbler, is a common sight (Fig. 8a). In the smaller houses, the courts (Fig. 8b) and balconies serve for many of the indoor activities. The quality of extensive external living spaces is further enhanced by potted flowering plants.

The traditional women take pride in decorating their hair with flowers.

The dwelling units are designed for comfortable and convenient residential function. Large openings are provided for increased air movement through the building. They are fitted with mosquito screens. Madras is in a low seismic zone, enabling load-bearing construction which is energy-efficient. But the windward walls permitting air-flow call for a framed structure in that direction. Flyash concrete is used for all structural constructions, which are very simple. The house plans not only suit the living styles but are also service-friendly. Kitchens and bathrooms are on the leeward side (Fig. 7c). The building plots have lots of native trees, yielding fruits and flowers for the residents.

Category	MIG I	MIG II	LIG
Plot Area (m^2)	240 - 300	180 - 220	90 - 100
Plinth Area (m^2)	110	95	35
Coverage	40%	47.5%	35%
No. of Floors	G + 3	G + 3	G + 2
Total Floor Area (m^2)	420	335	90
F.A.R.	1.55	1.7	1.0

Table 1: Building norms of housing categories

Conclusions

The design incorporates all the abovementioned passive strategies and provides thermal comfort with a minimal expenditure of conventional energy, but without sacrificing other housing requirements. As far as the impact on design criteria like density coverage and F.A.R. is concerned, it seems to be very close to the existing patterns of planned development in Madras. In fact, our design stakes out the upper limits of density for holistic optimized environments. Any further densification would result in higher buildings, which require energy-intensive construction materials like steel and cement. They also distance the indoor spaces from the advantageous microclimate generated by vegetation, and result in higher dependence on electricity to transport people, goods and piped services. Lower densities, however, are not economical in urban areas with high property costs. Costs of services and urban infrastructure would also become uneconomical. Therefore, with the norms suggested in the proposed scheme (Table 1), solar passive building systems could be adopted as a major housing-design criterion for tropical climates. With a similar exercise, energy-efficient strategies could be made available to other places in other climatic zones and the depletion of precious energy could be decelerated.

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The Impact of Infrastructure Underdevelopment on Natural Resources

A Proposal on Policy and Strategy Response for Developing Countries

Gedion Asfaw

Zusammenfassung

Die Unterentwicklung der Infrastruktur eines Landes führt in vielen Fällen zur Minderung seiner natürlichen Ressourcen. Umgekehrt ist die Entwicklung der Infrastruktur eines Landes, zusammen mit einer entsprechenden gesellschaftlichen Entwicklung, Voraussetzung für den wirksamen Schutz sowohl natürlicher als auch 'man-made' Ressourcen.

Entwicklungsländer befinden sich meistens in einem Teufelskreis von Armut und Ressourcenminderung. Die wesentlichen Gründe dafür sind:

- *unzureichendes Wissen, fehlende Technologie,*
- *mangelnde Regierungsfähigkeit (lack of good governance) und damit verbunden fehlende Infrastruktur, schlechte Energieversorgung, das Fehlen notwendiger Programme und Strategien, die Diskrepanz zwischen Bevölkerungszuwachs und vorhandenen Ressourcen.*

Der Autor sieht daher eine "nationale nachhaltige Entwicklungsstrategie", die ökologische Prinzipien beinhaltet, als gutes Instrument zur Lösung von Umwelt-Entwicklungsproblemen in Entwicklungsländern an. Mit einer solchen Strategie lassen sich soziale, wirtschaftliche und ökologische Belange integrieren, die Ziele der verschiedenen Planungsressorts koordinieren und die Zusammenarbeit zwischen den Behörden fördern.

Gedion Asfaw (Ethiopia, Master of Infrastructure Planning 1985) was until recently Vice-Minister for Natural Resources Development and Environmental Protection in Ethiopia. He has now taken a position with the IUCN (International Union for the Conservation of Nature) in Addis Abeba.

Introduction

For the last two decades, countries have embarked on national policy and strategy development based on international initiatives such as the United Nations' Conference on Human Environment in Stockholm in 1972; the United Nations' Conference on Environment and Development in Rio de Janeiro in 1992; and other global and regional conferences.

Donor countries and agencies have made it conditional that recipient countries should have some kind of environment development strategy in place for aid eligibility.

In many developing countries, the weak link in the chain is implementation, and not policy or strategy deficiency. But a well-designed policy with clear and achievable objectives, effective strategies and actionable programmes can greatly contribute to better implementation.

This paper attempts to show the close interrelationship of infrastructure development and natural resource conservation. A brief discussion of national sustainable development strategy is given, and includes policy provisions which may enhance infrastructure development.

The Need for Infrastructure Development

The social and economic infrastructures of most developing countries are characterized by low coverage and poor performance. The adequacy of social and economic infrastructure, such as roads, power and water supplies, telecommunication, schools and hospitals, deter-

mines the success or failure of countries in promoting socio-economic development.

As the population of developing countries increases, the service level of infrastructural facilities further deteriorates in the face of slow progress in the provision of additional facilities.

Infrastructure can deliver major benefits in economic growth and poverty alleviation if it is well designed and if its services respond efficiently to effective demand. The World Bank states that a 1% increase in the stock of infrastructure is associated with a 1% increase in gross domestic product (GDP).

The current state of infrastructure development in developing countries leaves much to be desired. The following table shows the infrastructure coverage and performance of low-income economies and OECD (Organisation for Economic Co-operation and Development) countries. Table 1 illustrates amply the very wide gap between the rich and poor countries in terms of infrastructure service availability. It also shows the need for developing countries to increase their infrastructure stock very rapidly to catch up with rapid population growth.

Indicator	Low-income economies	OECD countries
Coverage of infrastructure		
Main lines per thousand persons	3	475
Access to safe water (%)	47	99
Households with electricity (%)	21	98
Performance of infrastructure		
Diesel locomotives unavailable (%)	55	16
Unaccounted-for water (%)	35	13
Paved road not in good condition (%)	59	15
Power system loses (%)	22	7
Basic indicators		
GNP per capita, 1991(US dollars)	293	20,535
GNP per capita average annual growth rate, 1980-91 (%)	-0,2	2
Population average annual growth rate, 1980-91 (%)		
Urban	6	1
Total	3	0.5

Source: World Development Report, 1994, The World Bank

Table 1: Infrastructure coverage, performance, basic indicators

The population growth rate of developing countries is 5 to 6 times higher, while all service levels average a third lower than those of the OECD countries.

Natural Resources Degradation

Major Causes

The main argument of this paper is that developing countries should hasten to develop their infrastructure in order to effectively protect their natural and man-made resources. Development of infrastructure with commensurate social development is the basis and prerequisite for natural resource conservation.

The primary degraded resources and their major impacts include:

- deforestation leading to soil erosion, lack of construction material and energy deficiency;
- agricultural land degradation and fragmentation leading to food shortages.

These, plus unfavourable market forces, result in rural poverty and hunger leading to rural-urban migration with the end result of urban squalor and social unrest.

The core causes which lead developing countries into this vicious circle of poverty and resource degradation are many and complex. But these interrelated causes seem to hinge on two factors:

- lack of knowledge and technology,
- lack of good governance and derivatives thereof, such as lack of infrastructure (including energy), lack of appropriate policies and strategies; and the population and resource imbalance.

Energy Use

The major source of energy in developing countries is biomass. For instance, in Ethiopia, 95% of the energy supply is from biomass – mainly wood, so that wood collecting is the major cause of deforestation. Modern energy sources, such as petroleum and hydroelectricity, contribute only 4% and 1%, respectively.

To stop forest resource and soil degradation, current rapid deforestation must be halted. In Ethiopia, 40% of the land area was covered with forest a century ago. It is now left with only 2.7%, and deforestation is still continuing unabated. Unless alternative energy resources are made available to the people, teaching them about conservation practices will not produce results.

The same argument can be put forward for underdevelopment of the social infrastructure (schools, hospitals,...) and economic infrastructure (transport, industry, agriculture, water,...).

Where abject poverty is rampant, where people are under-fed and malnourished, where availability of schools and health services is very low, where most of the people are more than 10 to 20 km away from any kind of services, – *for these people, natural resource conservation is a secondary issue and will remain so* until the minimum basic requirements are met, and services offered.

Hitherto, governments of developing countries have attempted to mobilize the people to conserve natural resources on which most of their population depend fully for their survival.

In the absence of the basic requirements and services (food, shelter, education, health, energy), decades of efforts to reverse the degradation of natural resources have produced negligible results.

The population of most of the developing countries has doubled in the last two decades, which has made it increasingly difficult to continue the people-nature relationship. Food production based on hand tools and draught animals can no longer feed current populations. Energy demand can no longer be satisfied from rapidly disappearing forest resources.

What, then, should be the policy and strategy response of developing countries if they are to increase their stock of infrastructure and at the same time conserve their natural resources?

The attempt here is not to put forward a new development model, but to reiterate and stress existing development models which advocate self-reliance. One such model, known as "Ecodevelopment", by Robert Riddell of Cambridge University, lends itself conveniently to this discussion. Only the components of Ecodevelopment which fall within this frame of discussion and converge with my own experience shall be addressed in this paper.

Policy and Strategy Response Proposal

A number of development models have been experimented with by many developing countries. Development planners have eloquently put forward a number of development models targeted at the alleviation of poverty in developing countries.

In their quest for rapid economic development, countries have tried to latch on to all kinds of donor-driven initiatives, all the time vacillating from one initiative to the other, without achieving their planned objectives, and by doing so, wasting their scarce resources.

Examples are the adoptions of plans of action to combat desertification, the Tropical Forestry Action Plan, the National Conservation Strategy, the Environment Action Plan, the National Sustainable Development Strategy etc. Their implementation has usually left much to be desired.

A National Sustainable Development Strategy (NSDS), which embodies the principles of *Ecodevelopment,* may be a better instrument to respond to the environment-development issues of developing countries.

The NSDS has some obvious advantages:

1. Integration of social, economic and environmental objectives for the identification of trade-offs.
2. Coordination of sectoral policies and strategies.
3. Promotion of inter-agency coordination and sectoral integration.

The Policy Formulation Process

The policy and strategy formulation process is a cyclical process which consists of assessment of status and analysis, review of assessment, draft policy document preparation, implementation, monitoring and evaluation, feedback and revision.

Policies and strategies should be formulated by national experts and policy-makers. Sectoral policies on agriculture, forest, water resources, energy, mineral resources, human settlement, biodiversity, health, education are usually formulated on the basis of long-term national development policy.

There are also cross-sectoral policies, such as population policy, land-use policy, environmental policy, science and technology policy.

Policy implementation requires institutional framework, legislative framework, formulation of programmes and projects, and monitoring, evaluation and policy review.

Guiding Principles

Infrastructure development requires heavy investment – primarily in foreign currency, which is in short supply in most developing countries. Any national or sectoral policy and strategy which aims at expanding infrastructure development should embody innovative ways of financing, of mobilizing the community, and the private sector, and of utilizing existing resources effectively and efficiently.

Two principles ignored in most developing countries but which are cornerstones for the success of development policies and strategies are:

a) Political cohesion and commitment
Political commitment to policy and strategy are essential; this support should be long-term. Vacillation from one strategy initiative to another, especially through external pressure, should be avoided. Apathy and complacency of the people should give way to active participation in all aspects of development. This requires committed political leadership and education of the people.

b) Political and administrative integrity
Governments of developing countries must strive to put in place efficient institutional structures and wipe out or minimize corruption – not only through administrative means, but also through incentive mechanisms. The role of the governments must be minimized and the private sectors and communities must play an increasing role in the development of infrastructure.

Policy Directions and Components

In general, a comprehensive National Sustainable Development Strategy has five major components and additional implementation-phase components. These are:

- Situation Analysis
- Major Objectives
- Detailed Objectives
- Guiding Principles
- Strategies
- Action Plan
- Programmes and Projects

The betterment of the peoples' lives must be central to the policy objective. A number of projects in developing countries which are crucial to the development of the country are frequently barred from implementation on grounds of their negative impact on the environment. Environmental impact assessment

	INFRASTRUCTURE						NATURAL RESOURCES								
COUNTRY	Household with electricity (% of total)	System losses (% output of total 1984)	Telephone mainline (per 1000 pers. 1990)	Faults (per 100 mainline per year 1990)	Road density (km per million persons 1988)	Population with access to safe water (% of total 1990)	Natural forest area 1991			Protected areas 1993			Fresh water resources annual withdrawal		
							Total in 1000 sq.km 1990	Annual deforestation		in 1000 sq.km	Number	% of total area	Total cu.km	% of total	per capita total
								1000 sq.km	% of total						
ETHIOPIA	10	--	2	116	84	18	142	0.4	0.3	25.3	11	2.1	2.2	2.0	49
UGANDA	--	40	2	--	118	33	63	0.6	0.9	18.7	32	7.9	0.2	0.3	20
INDIA	54	19	6	--	893	73	517	3.4	0.6	131.6	331	4.0	380	18.2	612
COLOMBIA	79	22	75	6	309	86	541	3.7	0.6	93.9	79	8.2	5.3	0.5	174
THAILAND	43	11	24	2	513	77	127	5.2	2.9	64.8	106	12.6	31.9	17.8	606
GERMANY	100	5	483	--ca	14000	100	107	-0.5	-0.05	87.8	472	24.6	53.7	31.4	1868

Source: 1. World Development Report, 1994, World Bank, 1994, 2. Energy Options for Africa, S.Karekezie el-al 1993

Table 2: Infrastructure coverage and performance and natural resources indicators of some developing countries and Germany

(EIA), a component of the NSDS, is a planning process which predicts adverse impact of development projects and maps out mitigating measures. An EIA should not be an instrument to stop development projects – thus going against the central objective improving living conditions. EIAs should minimize negative impacts of projects with minimum cost, and not burden the project with unbearable costs of mitigation measures.

The development of infrastructure surely impinges on natural resources and the environment, but it is its under-development that puts poor nations into the vicious circle of poverty and environmental degradation.

Policy provisions should be designed to expand infrastructure development. This may be achieved by incorporating private-sector participation, incentive mechanisms, and other innovative schemes.

a) Private-sector participation
The policy may encourage private-sector participation in financing, consulting, construction, management, operation and maintenance of infrastructure facilities. Specific strategies should stipulate just how the private sector can participate in the above roles.

b) Incentive mechanism
The policy may encourage infrastructure developers by providing tax incentives and appropriate tariff structures. A provision of rural water supply schemes, if and when the benefiting community agrees to plant trees, is one type of incentive mechanism which has succeeded in achieving dual objectives of water supply provision and conservation. Incentives should be provided also for manufacturers and distributors of energy-saving devices and for proponents of alternative energy sources.

c) Innovative ways
– *Reducing unaccounted-for water*
Policy directives must limit unaccounted-for water in order to use funds saved to expand water supply services. In a city such as Addis Abeba, if 15% is the goal for unaccounted-for treated water, but actually 35% is unaccounted for, then there is an annual loss of 20%, which means 2 to 3 million German marks a year in loss.
– *Alternative to wood products*
In a bid to minimize deforestation, the policy should encourage both government agencies and the private sector to use alternatives for all wood-based commodities. These include scaffolding, furniture, building material and wood fuel.
– *Integrate relief with development*
Rural infrastructure development can be effectively enhanced if inputs such as food aid are used to build roads, dams, soil conservation schemes and schools through the participation of the community. Food for work or similar employment-generating schemes have been successfully implemented in many countries in Asia and subsaharan Africa. The policy should provide for participation of aid agencies in utilizing their relief aid to build infrastructure assets which would ultimately make the beneficiaries self-reliant.

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Interdisciplinary and Inter-Agency Cooperation in Nepal
The Conservation of Phewa Lake

Girija Prasad Gorkhaly

Zusammenfassung

Der Artikel beschreibt die interdisziplinäre Vorgehensweise bei der Planung für die nachhaltige Entwicklung sowie den Naturschutz des Gebietes um den Phewa-See in Westnepal, an dem mehrere staatliche Einrichtungen bzw. nationale und internationale Organisationen beteiligt sind.

Die Stadt Pokhara, die sich am Phewa-See befindet, ist sprunghaft gewachsen, seit sie im Jahr 1972 zur Distrikthauptstadt von Westnepal erklärt wurde. Die unkontrollierte Ausdehnung des Stadtgebietes sowie die Verschmutzung des Phewa-Sees sind miteinander verflochtene Probleme, die durch sektorale Versuche zur Erhaltung der Natur und der Steuerung der Entwicklung nicht hinreichend gelöst werden konnten.

Die nationale Planungskommission von Nepal hat mittels ihres Umweltschutzrates und in Zusammenarbeit mit der IUCN, verschiedenen Regierungsabteilungen, Kommunalpolitikern, NGOs und lokalen Interessensvertretern Richtlinien zur Erhaltung des Phewa-Sees entwickelt. Dadurch, daß alle Beteiligten die beschlossenen Maßnahmen verstanden und unterstützt haben, konnte diese Aufgabe erfolgreich abgeschlossen werden. Diese Art der Kooperation war neu in Nepal und es ist zu hoffen, daß sie für zukünftige interdisziplinäre Zusammenarbeit zwischen allen am Planungsprozess Beteiligten bzw. davon Betroffenen Modellcharakter haben wird.

Girija Prasad Gorkhaly (Nepal, Master of Infrastructure Planning 1989) is Director of the Western Regional Directorate of the Department of Housing and Urban Development in Nepal. He has recently begun one year as a Fullbright Fellow in a program for mid-career professionals in the USA at the University of North Carolina, Chapel Hill, Department of Urban and Regional Planning.

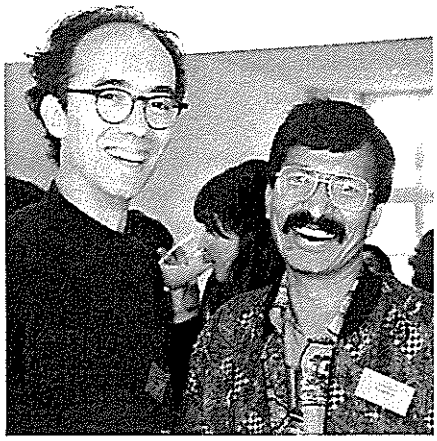
Abstract

This paper relates experiences gathered recently during work in conjunction with the preparation of "Guidelines for Phewa Lake Conservation" published by the National Planning Commission (NPC), H.M. Government of Nepal. It focuses on the process and out-come of interdisciplinary and inter-agency cooperation.

Phewa Lake is situated in Kaski District, the headquarters of the Western Region of Nepal. The main problems are siltation and water pollution, both aggravated by human activities such as poor agricultural practices, transportation, human settlement and drainage of waste and storm water. At the present rate, siltation would fill the lake in about 150 years. The lake is already highly polluted and unfit for bathing on the east bank.

In response to the above problems, the Environment Protection Council (EPC) of the NPC and the International Union for the Conservation of Nature (IUCN) worked out guidelines to improve the situation early in 1995, collaborating with different institutions of different disciplines. The EPC, the Dept. of Housing & Urban Development (DHUD), and a Conservation Specialist of IUCN worked very closely with the beneficiaries at grass-root level, local politicians, local NGOs, and district-line agencies responsible for irrigation, water supply, electricity, agriculture, forest, soil & watershed conservation and others.

This project is a fine example of interdisciplinary and inter-agency cooperation in the field of conservation and urban development planning. There is now good reason to believe that both the sustainable development of the Phewa Lake area and the conservation of its natural and cultural heritage are attainable goals.



Girija Gorkhaly (right) and Francisco Luciano, both Master of Infrastructure Planning 1989

Introduction

This paper is a short description of a document entitled *"Guidelines for Phewa Lake Conservation"* prepared by the National Planning Commission (NPC), H.M. Government of Nepal, in collaboration with local beneficiaries and institutions such as the World Conservation Union (IUCN), and local line agencies. The Department of Housing & Urban Development's Western Regional Directorate was very much involved in this project, as it is the implementing agency. The author of this article is HUDs Director of the Western Regional Directorate and co-author of the above-mentioned document.

The *"Guidelines for Phewa Lake Conservation"* is the first urban planning work that has been done in this magnitude in Nepal utilizing conservation of nature as the basis of sustainable town development.

Nepal is situated between two big neighbours – China in the north and India in the south. Lake Phewa is situated in Kaski District, which is the headquarters of the Restern Region of Nepal.

Phewa Lake is beautifully located in the foreground of Machapuchery, a snow-covered mountain, as well as in the Annapurna Himalayan Range. It is 1 km west of downtown Pokhara, about 5 km long with a N-W axis and about 2 km wide at the widest part. Its geographical position is 24 degrees north and 88 degrees east. It is believed to have been created by a glacial lake outburst some 800 years ago. Now the lake is fed by two rivers, the Andheri and the Harpan. The water level is raised by a dam to its present level of 793 meters above sea level. The spillover from the dam and water which passes through the hydropower station goes to the Seti River via the Phurse River.

On the southwest bank is Forest Department-managed forest called Raniban; on the northern bank are the villages of Anadu, Margi, Lamadanda, and Chapakot. These are very sparse settlements and can be reached from the town on calm days by boat in about 20 minutes. There is also a connection via a very long trail. Along the north-east bank is a new gravel access road running from Pokhara Municipal boundary via Gaira Chautara, Sedi, Chahadi, Koltari, Khapaundi to Pame. There are plans to extend the road to Bhaudaure. At the ridge of the watershed are two old settlements: Kaskikot, and Sarankot.

Situation Leading up to the "Guidelines"

Ever since Pokhara was declared Western Nepal's Regional Headquarters in 1972, sectoral planning has been conducted independently by the various departments responsible for physical planning, forestry, and soil and watershed conservation with the aim of conserving and developing Phewa Lake and its surroundings. At the same time, the Pokhara Valley Town Development Committee, which includes people from different sectors, concentrated its activities on urban planning in the most densely populated areas.

After Pokhara became the Regional Headquarters in 1972, the city started to take off. Facilities and population grew astronomically. Now the population is 105,000, and present growth rate is 7.2% per year. By 2005, the population will exceed 200,000. As urban sprawl began to threaten ever-greater areas along the lake, it became clear that independent, sectoral efforts to control the situation were not sufficient; a coordinated effort was necessary. In the early 1990s, the National Planning Commission established the National Environment Protection Council. It is under its auspices that the interdisciplinary, multi-institutional project of preparing the *"Guidelines for Phewa Lake Conservation"* was carried through. Currently, the Action Plan is being prepared with related agencies under the coordination of the NPC and IUCN and within the Guideline.

At present, Phewa Lake faces two main problems:

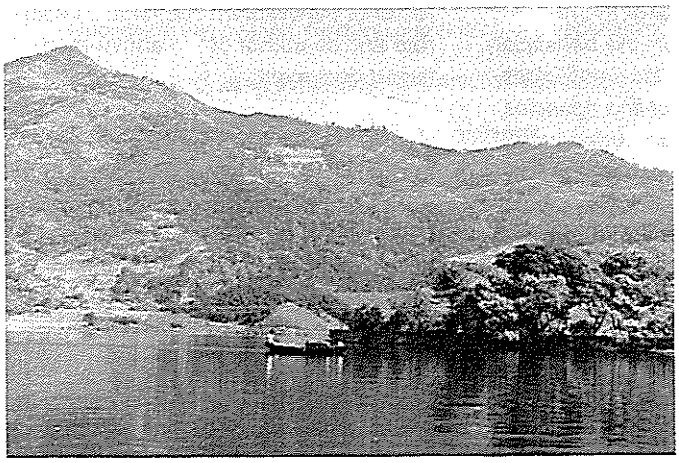
1. Siltation
The loose soil in the watershed is subject to soil erosion, which has been aggravated by human activities such as poor agricultural practices and road construction. The average amount of soil lost in the watershed was estimated to be 17.37 m^3/ha in 1993/94, causing a yearly siltation of 175 000 - 225 000 m^3. Siltation at this rate will fill the lake in about 150 years.

2. Pollution
Stormwater and wastewater disposal from the growing settlement around the lake cause pollution near Pokhara, and the lake water has become very polluted and unfit for bathing near the east bank. Basically, the pollution sources are organic: leaching of fertilizer and domestic waste. Of course, some non-biodegradable materials are also contributing to pollution.

Considering the above problems, the Environment Protection Council (EPC) of NPC with the help of IUCN published *"Guidelines for Phewa Lake Conservation"* early 1995. It is the first time that urban planning and nature conservation work has been coordinated so closely in Nepal. The area (action) plans are being worked out to facilitate the guidelines related to specific areas or sectors:

The Phewa Conservation Guideline, 2051

The guideline covers all the watershed area of Phewa Lake up to the Kaskikot Chapakot rivulet. Its goals are:
- To achieve sustainable conservation of the natural and cultural heritage of Phewa Lake and its surrounding area through the conservation of Phewa Lake.
- To control the increasing pollution due to the population rise in haphazardly developing settlements around the lake.
- Improve tourism by conserving and improving the beauty of the lake.



Phewa Lake is beautifully located

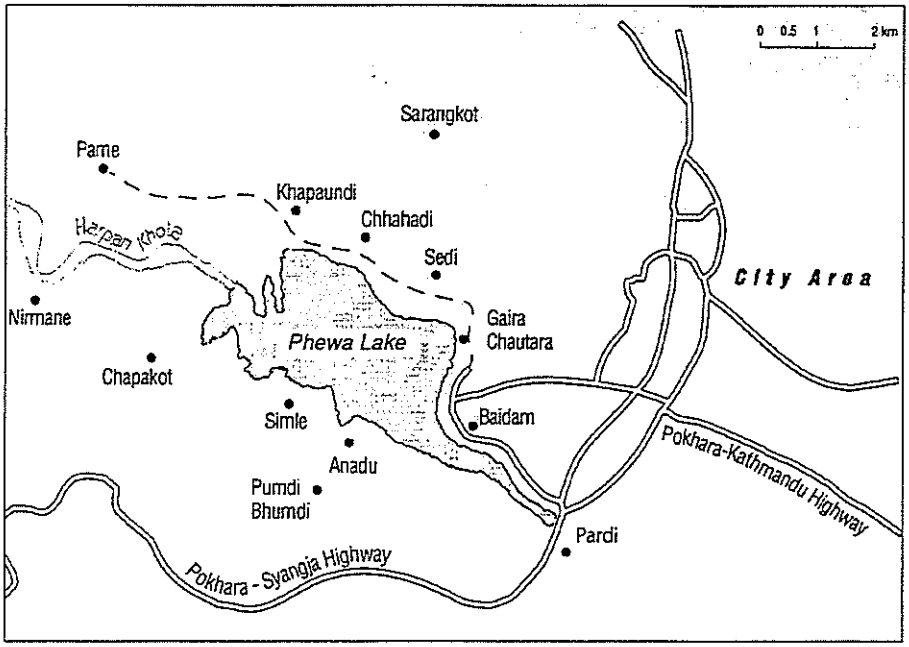
Uncontrolled urban development in Pokhara (Photos: Ram Parajuli)

The H.M.Government of Nepal formed the "Phewa Area Conservation Committee" consisting of the following members:

1. District Development Committee Chairperson (Chairperson)
2. Chief District Officer
3. Mayor
4. Local Development Officer
5. Regional Director, Housing & Urban Development
6. Regional Director, Irrigation
7. Chief, Tourism Information Center
8. Chief, District Forest Office
9. Representative, NPC Regional Office
10. Representative, Hotel Association
11. Representative, NGOs of Pokhara
12. Ward chairpersons of the area
13. Three local persons of repute nominated by H.M.Government.
14. Engineer, assigned by DHUD Regional Director (Member-secretary)

The Phewa Conservation Committee was charged with giving priority in the following jobs:

1. Land-use Planning
- Demarcation of lake and transfer of ownership to Pokhara Municipality.
- Annexation of the Phewa area into the Pokhara Municipality.
- Develop and implement special by-laws in the area as Pokhara Municipality feels necessary.
- Prepare long- and short-term land-use plans for Phewa area.
- Prevent land slides from any construction in the area.
- Harpankhola river training.
- Create buffer of 10-30 meters by acquiring the land beyond the lake line and promote the agro-forestry and tourism industries.
- Create pedestrian and bicycle lanes along the lake bank.
- Improve the septic tanks in the area.
- Conserve and develop the government forest on the west bank.
- Remove the squatters on the Firkekhola.
- Control and guide hotel construction around the lake.



Map 1: Phewa Lake Area

2. Air and Noise Pollution
- Control use of heavy vehicles like tractors and power-tillers near the lake, especially in the recreational area.
- Ban horns and limit vehicle operation time near the lake.

3. Visual Pollution
- Manage the rituals in the temple on the island in the lake and manage the garbage there.
- Prepare landscape plan to prevent construction which blocks the beauty of the area.

4. Garbage Management
- Provide suitable places for garbage collection.
- Initiate recycling of non-degradable materials like glass, plastics and metals.
- Initiate compost plant.
- Provide suitable site for dumping waste from the hospital.
- Prevent dirt from getting into the lake and periodically dredge the plants from the lake.

5. Siltation
- Drain the feeder rivers.
- Improve the drainage of Pame access road.
- Realign, where necessary, and black-top the Pame access road.

6. Bio-diversity
- Declare government forest on the south-west bank a conservation area and allow only activities compatible with preservation of wildlife and their habitat.
- Preserve the marshy land at the upstream side.
- Preserve traditional knowledge and skills to maintain the bio-diversity of the lake.
- Control tourism in the special areas of wildlife (on land and water).
- Control the consumption of forest products.

7. Tourism
- Identify and prepare management plan for touristic/interesting areas in the and around Pokhara.
- Educate the public and guides about environmental ethics.
- Introduce an entrance fee to the area and spend that on improving the facilities for tourists.

One of the basic philosophies of the guideline adopted is to control the water frontier and limit the high density of buildings near the lake while land-use for higher utility purposes has been encouraged. In the meantime, more infrastructure should be provided to guide the growth of settlement efficiently. Promotional measures have been taken to balance the restrictive measures.

Soon after the guideline was received, the Pokhara Valley Town Development Committee passed an ordinance that all existing buildings be registered and any new building construction get permission from its office. Also it passed new construction limitations such that:

- no construction up to 20 meters from the waterfront,
- 10% plot coverage 20-120 meters from the water front,
- 25% plot coverage 120-220 meters from the water front,
- 50% plot coverage 220-320 meters from the water front.

Results and Conclusions

This is a fine example of easy and quick adaptation of plans prepared through institutional cooperation. In the Pokhara Valley Town Development Committee (PVTDC), all sectoral representatives and social and political leaders understood and accepted the above proposal made according to this plan. Of course, there were some difficulties in understanding the other institutional viewpoints; for example, it took a long time to convince the irrigation people about aquatic changes in the lake or even the effect of draining into the lake. Similarly, hotel people found it difficult to convince the agricultural people about the importance of the lake, and that the requirements were to their advantage.

This project was carried out by a core group of three; viz: the Under-secretary of EPC, the Undersecretary of DHUD, and the Conservation specialist of IUCN, working very closely with the beneficiaries at the grass-root level, local politicians like municipal and district representatives of the concerned area, local NGOs, and district line agencies. As the implementing agency, the Housing and Urban Development Western Regional Directorate, together with the Pokhara Valley Town Development Committee (PVTDC), played a key role as the host or field office. Now, to facilitate the development and conservation of Phewa Lake area, area planning has begun. In early August, 1995, the team went to Pokhara to form a working group in Pokhara itself. This working group will include, in addition to the core group, planning professionals, local beneficiaries, local politicians and local line agencies.

This project is considered a success. It launched the strong collaboration between two agencies; viz: the Department of Housing and Urban Planning (DHUD) and The World Conservation Union (IUCN) under the coordination of the National Planning Commission. In recognition of the success of this multi-disciplinary job and inter-agency cooperation, NPC has already sanctioned follow-up project action planning with a more diverse group of professionals, politicians and local beneficiaries.

Though success at the local level is important, the greatest success of this interdisciplinary, inter-agency initiative will be the institutionalization of such approaches. Though perhaps initially more difficult to organize and time-consuming due to the inclusion of both specialists and stakeholders in the process, the consensus thus reached and the acceptance of necessary measures have greater chances of successful application than any projects decided upon by a few people far away from the impacted area.

Towards Low-Income Housing Policies Consistent with Urban Development Strategies

Juan Pablo Garcia Vargas

Zusammenfassung

Der Autor untersucht am Beispiel der kolumbianischen Städtepolitik die ökonomischen Möglichkeiten einer komplexen Stadtentwicklung, in der die formelle und informelle Stadtentwicklung integriert ist. Er entwickelt dazu ökonomische und planerische Vorgehensweisen.

Abstract

This paper discusses an approach to state intervention in the provision of housing for low-income groups in developing countries such as Colombia, while simultaneously acting upon the key components that define a coherent urban structure.

The approach is based on the Colombian experience during the last decades. The urban development and low-income housing policies recently adopted in the country reflect the broad consensus that is being formed on the necessity of interrelating both strategies. Although some elements discussed here are not part of these policies, they are basically in agreement with their objectives.

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Accelerated Growth and Fragmented Urban Tissues

The very rapid expansion of the major Colombian cities (as of many other Latin-American cities) during the second half of this century has been due both to the high rate of population growth and the sudden shift of economic conditions for rural production. Traditional agriculture, the main source of income for the largest part of the population up to 1950, has in many areas no longer been able to compete with the new capital-intensive farming techniques of modern agriculture. The surplus population in the rural areas has had no option but to migrate to the cities in search of work.

Up to this point, the process has looked very much like that of Europe during the age of industrialization. The difference is not only the high population involved, however, but the very fact that 20th-century industry transplanted to developing countries is not able to absorb the large number of job-demanding migrants. The ensuing urban conglomerates reflect this particular condition. Only part of the city is really "urban", in the sense that its inhabitants are fully integrated into the modern economy and live in an area with the infrastructure and amenities associated with an urban way of life.

But the conglomerates also clearly reveal the difficulty of the system to adequately assimilate the tide of arriving migrants, or their subsequent generations. Obviously, the new inhabitants need to follow very pragmatic strategies so as to survive and to settle down somewhere within the range of the urban economic field. Both processes, surviving and settling down, are closely linked and initially precarious in most cases.

The resulting physical structure that we call "city" is the manifestation of these underlying conditions. The "formal" city is structured urban space, at least to a certain degree, according to the logic of a functional coherence. It has a basic degree of previous planning for its expansion and follows, although with difficulty, preconceived rules and regulations for its building activity.

The "informal" city is a weakly and inadequately structured urban organ, growing seemingly out of control, spilling over an ample territory beyond the formal city limits, with very inadequate ties to the main urban systems and activities.

The final result is an ill-functioning organism. As the city becomes larger and larger, it is very difficult to manage even the essential systems and networks. The ensuing toll on its social fabric and environment is evident. In some cases, its functional inefficiency starts to suffocate economic efficiency, the very reason for its existence.

Adjusting Low-Income Housing Policies

As the new population started to settle down, the inadequacy of its surroundings was inmediately obvious. During the first period, which covered nearly four decades, the public authorities tried to solve the problem through low-income housing projects, while making some efforts to avoid the appearance of slums around the city. At the end, it was clear that the magnitude of the problem coupled with the scarcity of resources had made this strategy simply impractical: the share of public housing was marginal compared to the amount of shelters illegally built by the poor.

During the seventies, social research led to better understanding. Following the usual pattern, migrants or newly-formed families initially live in a rented room under very unstable conditions. A sizable part of their scanty income is spent on the rent. As soon as they can, with minimal savings and knowledge about the opportunities offered by the city, they look for a cheap plot of land.

The plot is offered by an authoritative character; in this case, an illegal developer who has bought and coarsely subdivided the land, almost always on the outskirts of the city and often in places unsuitable for housing. In an alternative scheme, the family joins an organized community which looks for and illegally occupies a piece of land that is either public or private property. This variation, although free, has long-lasting effects, since what the "squatter" obtains is a legally disputed and uncertain possession.

Once a precarious shelter is built, the settler secures an actual source of savings, the rent not being paid. This is the real factor which initiates a process of further building with permanent material and consolidation of the housing unit. This usually takes several years or even decades. The settler uses periods of unemployment or subemployment to construct what simultaneously becomes his home and his family capital.

The Colombian low-income housing policy has finally changed, replacing the direct intervention scheme with a new strategy to support this spontaneous self-help scheme which is economically realistic and logical. Several ways of accelerating the process have been proposed. Earlier this decade, the Colombian government adopted a strategy based on subsidies for low-income families. This approach involves subvention for poor families to improve their precarious shelters (if they at least own a plot) or to acquire a piece of land (urbanized plot, basic housing unit). In both cases, this is through the associative activity of a self-help community or group. In the case of the new units, however, the subvention can also be used for an individual purchase on the formal, private market.

At this stage, it is still difficult to evaluate the results of this new housing policy. Not enough comprehensive data has been collected to assess the real impact of the resources distributed. Adequate indicators to measure quality improvements by the supported self-help actions are being developed. It has already become clear, nevertheless, that the improvement activity should go beyond the individual housing units. The most recent revision of the policy aims at developing or improving some social and technical infrastructural elements at the neighborhood level.

Low-Income Housing vs. Urban Strategies

Spontaneous dwellings appear almost invariably on the outskirts of the city; in many cases on a piece of land unsuitable for urban development, mainly due to conditions such as steep slopes, risk of landslides or floods, or in general the high costs involved if infrastructure is to be provided there. Often, there is only a weak road connection to the developed city. These irregular housing areas do not match the guidelines of the urban development plan for the city.

However, not only the illegal, self-built shelters contradict the provisions of the urban plan. The low-income housing policies described have something in common: they do not consider in depth their potential effects on the urban structure. In fact, they almost intentionally overrule the adopted strategies for orderly urban growth. The main reason for this paradox is the rapidly increasing price of land which is, or is becoming, suitable for urbanization.

It has been pointed out how both public and private low-income housing projects tend to be located, as spontaneous settlements are, in places almost disconnected from the main urban structure, where the cost of land is not yet too high. From the limited point of view of an individual project, this makes sense: the price of the required land, which is one of the largest items in the overall budget, needs to be as low as possible in order to keep final costs down and thus reach the target groups.

With the new strategy of supporting spontaneous dwellings through subsidies for improvement, the locational decisions based on the lowest land prices have been reinforced, this time through the previous choices of illegal developers and self-help communities or individuals. Conscious of the dangers implicit in the scheme, the Colombian law limited the support to existing shelters and up to a given date. Illegal urbanization processes nevertheless have continued throughout the country. If coherent, the subventions-for-improvement strategy will in future have to be extended to the new settlers.

If nothing is done, illegal land developers and self-help communities, together with public and private low-income housing developers, will carry on with the process of fragmentation of the urban structure through their less suitable / lowest-price land-acquisition strategy.

In the past, urban planning authorities tried to control these wrong locational decisions through more – ineffective – planning, more regulations and stiffer penalties for illegal developers. The minimum standards for urbanization were drastically lowered to minimize costs for legal developers of land for low-income housing. These planning and regulatory measures didn't produce the expected results. One of the main reasons is that the distortion produced by the land market in and around the city were not addressed.

Every process of urban development definitively changes the structure of prices for urbanized land. This dynamic in land prices reflects a changing relation between potentially new urban areas and the activities already located in the urban territory. Of all the free land that surrounds a city, particular sites which are better suited to the existing areas of activities (residential, commercial, industrial, and so on), to the infrastructure networks, to the urban equipment and facilities and to the adequate environmental conditions, become the best areas for

incorporation into the urban structure. They are usually the best option for an orderly expansion of the city, for their proximity allows for an optimal use of the existing infrastructure; requires the lowest investment for expansion of networks; and minimizes trip lengths thus making transportation, among other factors, more efficient. Town planning recognizes this and, if enforced, it even limits the set of available areas for urbanization through zoning regulations.

The suitable areas become more expensive simply because only a limited portion of free land outside a city has these special conditions and meets the planning regulations. Land cannot be produced or duplicated. Therefore, as economists since Ricardo have said, "the land owners profit on this market imperfection by way of "rent" or overprice (also called "plusvalia")".

Low-income families looking for houses can no longer afford to settle down in the overpriced areas for urban expansion. The least suitable / lowest-priced land is the alternative left to them; mostly in very inadequate areas but with at least precarious access to the city. The polarized city thus appears.

The middle- or high-income groups can afford to settle in fully-developed areas and in housing units of adequate standards. This requires financial schemes, formal procedures for the transaction of real estate. Therefore, a previous approval for the land development and building activity is needed; i.e., some kind of planning regulations must be imposed. The low-income groups can only eventually obtain a piece of land on which they can initially build. These two clearly different processes of urbanization and housing provision also reinforce the polarization of the city.

The settlement pattern in the urban territory is clearly determined by the income structure. Both formal and informal city growth is therefore closely related to land prices.

Therefore, if a process of orderly urban development could be effectively implemented in these cities, no land would be left for low-income housing at affordable costs. Since this is not feasible, the opposite is true: the low-income housing provision process in cities of developing countries under market conditions, as is Colombia, necessarily disrupts any consistent urban development strategy.

The Case for Effective Urban Strategies

The current situation is that low-income housing policies have become pragmatic: the process of urbanization in developing countries has deep economic, social and cultural roots. It simply cannot (and probably should not) be stopped. The self-help housing action of low-income families is the only realistic alternative. Moreover, the Colombian government, like many others in similar countries, has decided to support these actions, accelerating their consolidation processes.

The institutions responsible for urban activities have lost their credibility. It seems that they are unable to control, or even exert a minimum influence on, the pattern of settlement of low-income groups, which occupy the largest share of urban territories. The current urban plans have only partial effect on the formal city, mostly through the mechanisms of road network expansion design and building regulations. As for the informal urban space, reality comes first and planning follows.

It must, however, be emphasized that the dichotomy between low-income housing interventions and urban strategies has to be resolved if sustainable urban development is to be achieved.

Even when these areas are finally linked to the main urban systems, the negative consequences of their locational and structural weaknesses continue. The degree of accessibility between activities is reduced; transportation routes are disproportionately long. Some urban components can be improved, while others cannot, simply because no physical space was reserved. The resulting side-effects are usually observed only long after the housing actions and projects have been completed.

The Interactive Strategy

The scarcity of resources to cope with low-income housing demand in countries like Colombia makes it necessary to continue to rely upon the self-help capabilities of low-income groups. Therefore the basic premise of the current housing policy, the strategy of supporting organized groups (through financial and technical cooperation) should be maintained.

The supporting action, however, should not start after the spontaneous action has taken place, but at a much earlier stage. The key words here are inducing and organizing the self-help action of the poor, with the purpose of producing an urban tissue which is technically, economically and environmentally feasible.

The same can be said about the isolated actions of public institutions and the private sector when they build new low-income housing projects. Since they usually follow the same locational logic of poor communities (or of their land supplier, the illegal developer), their interventions also need to align with an adequate strategy for urban expansion.

Focusing on the Key Elements in an Urban Structure

The interactive strategy implies a combination of supporting self-help community housing solutions and private or public projects with a simultaneous effort to plan and effectively control the basic components that shape the urban organism.

For several reasons low-income housing in developing countries is closely related to a number of key urban factors: It occupies the largest share of the urban territory, absorbs a large share of the investment in new infrastructure, involves the daily life of most of the city inhabitants, often produces the most acute environmental impact and, as already mentioned, acts as a powerful pull for the expansion of the city. If low-income housing actions can be channelled, a real possibility for devising and carrying out a sustainable urban development strategy will arise. The key factors to be controlled in this regard include:

– *Location*

Areas appropriate for housing should be defined based on aspects such as accessibility to employment centers, proximity to existing infrastructure and social

amenities, capacity of the local environment. Obviously, they have to be dimensioned in accordance with the expected population growth in the city.

– Infrastructure Networks

Once defined, the advisable locations should not simply be drawn on the zoning map of the urban plan. The idea, instead, is that municipal authorities have a very active role to play, and infrastructure is a powerful tool to make zoning decisions a reality. The leading system here is the road & transportation network, since it requires a sizable amount of space; the other systems usually follow its pattern. The priorities come in a top-down order: the city should secure at least the macro-network.

– Green Areas

Under normal circumstances, green areas should not be built upon. However, poor people desperately searching for a place to build a shelter do not make any provision whatsoever for natural environment or land for recreational purposes. Once again, the top-down scheme of priorities applies.

– Places of Centrality

Housing areas are not only buildings, roads and networks. People live there and, like in traditional small towns, a complete microcosm of social interaction is to be generated. The scenario for those interactions should be provided by linking the necessary social equipment with open public spaces and symbols of neighborhood identity. The places of centrality are essential in the process of socially integrating people who have recently broken their traditional social links.

As experience has shown, these public spaces do not appear spontaneously unless the basic conditions are laid down: accessible points central to the neighborhood, where the minimum social infrastructure (education, health, administration) is to be articulated. Consequently, they should be very well linked to other central places in the neighborhood and to the larger facilities on the city scale. They act as the nuclei in an otherwise undifferentiated housing-urban structure.

Finding Alternative Financial Sources for Urban Infrastructure

How can the provision of this basic structure be made economically feasible and the distortion effects of increasing land prices on locational decisions be avoided?

The proposed scheme is to make use of one potentially huge source of income for every city: the overprices in land generated through the provision of public infrastructure; through granting legal construction rights (urban development & construction permits) to land around a city; or simply through the process of urban development itself, a social effort which should be returned to society as a whole, not to a small number of lucky landowners.

The idea of tapping the "plusvalia" is, of course, not new. It has faced strong political opposition whenever and wherever it has been imposed as a sort of tax on land ownership. Indeed, a particular owner could not be able to pay this tax if the land itself yields no returns. The scheme of charging when land is being sold or transfered, is much better. In any case, opposition to this system still remains, since it continues to be perceived as a tax levied on private property.

The building permit granted to a piece of land changes its condition from rural to urban, from an economic point of view. The so transformed land can now support a vital economic activity, the building industry. Therefore, when a building developer buys a plot, he is paying a large amount of money not for the ground itself, but for the building permit. This is the basis of the real state & building activity for the "formal" part of the cities in developing countries.

The building permits are distributed, in a very unbalanced way, among all the areas being incorporated into a city. The planning authorities of every city decide which portions of land are agricultural, recreational or environmentally protected areas. Other areas are classified as housing, commercial or industrial, obtaining different kinds of building permits, according to the density allowed, height of buildings, etc. Their owners receive a valuable economic good for free, which they then sell on the real state market to those who really need it: the formal building developers.

The questions arises: why should it be distributed freely? Why should it not be sold in accordance with the same logic of the real state activity to the direct users, the urbanization developers? The obvious answer is that the cities in developing countries should stop this drainage of social resources which end up unequally distributed in the hands of some landowners. These cities should retain and sell the permits for land development and building in order to finance the required support for low-income groups and the construction of the much-needed infrastructure.

From the point of view of the developer, the situation does not change because there are no additional costs involved. What really happens is that the owner of the land is not simultaneously the owner of the permits for building. They belong to the city and are for sale if the area is considered to be of strategic interest for urban development.

The Private-Public Venture of Planning and Developing a City

One step further, the city's authorities do not simply sell the building permits, but invest them as part of a business-like agreement to develop large areas adequate for urban expansion. There are three bodies involved: the owner(s) of the land, investing the value of the unused piece of land; the city, investing the construction rights; and the developer, investing the construction costs for urbanizing a new area. The city acts as the real promoter of the venture, creating a liason between all the land owners in the area, looking for banks and for private construction companies interested in financing and executing the urban development operation.

The profits will be distributed among the partners, in the form of urbanized land, proportionally to the value of their investments. Then the city will allocate areas which can be dedicated with priority to low-income housing. These structured and well-located areas will constitute a functionally and environmentally sound frame for the subsequent action of self-help communities.

Redirecting Subventions for Low-Income Housing

Strangely, low-income housing policy is focused on only the housing unit or, at most, its immediate neighborhood. It is, however, well-known that housing cannot be completely separated from the urban space and the environment in which it is placed. Many of the standards of quality associated with a given housing unit are determined by the urban systems: public services, transportation availability, proximity to employment centers or urban amenities, safe and sound natural environment.

By abandoning such factors, the housing strategy of supporting self-help actions is of limited scope. Only some elements can be improved; i.e., the most obvious ones. Housing entails much more than walls, roofs, paved streets. Unfortunately, many of the key elements of an urban structure, those which have perhaps the longest lasting effects on the quality of life of the inhabitants of a city, are extremely difficult to modify. If they are inadequate from the beginning of a settlement, they tend to remain so forever.

Therefore, the priority should be redirected towards securing those basic urban elements of housing (location, infrastructure networks, green areas, places of centrality). But even if the inappropriate structures have already been established, the priority remains in making them as sound as possible. If the self-help action of low-income communities is directed to sustainable urban environments and systems, the progressive process of housing will be founded on a solid basis.

Part of the necessary resources could come from the form already described of tapping the social profits that result from the process of urban development. Other parts could come from redirecting the subventions for low-income housing towards investments based on a comprehensive approach to urban development and social housing interrelation and interdependence.

Conclusion

The momentum of the process of development of the formal city can be used to provide the necessary frame for low-income housing in the context of a coherent strategy of urban development. The formal and informal city should no longer be disconnected processes, for the financial leverage of one can be used to channel and integrate the dynamics of the other. The essential elements for an adequate urban structure are a precondition for any attempt to support the self-help activities of low-income communities if a functional, coherent, harmonious and sustainable urban development is envisaged.

German Development Aid Policies
Perspectives for the Future

Peter Wolff

In the following I will present an overview of the goals and concepts of Germany's development cooperation policy. This brief survey is neither comprehensive nor does it have an official character. Its facts and figures are mainly based on "German Development Policy – Memorandum of the Government of the Federal Republic of Germany " for the OECD (Organization for Economic Co-operation and Development) / DAC (Development Assistance Committee) Aid Review 1994/95.

1. German Official Development Aid (ODA) amounts to about 11 billion DM per year. This figure has been kept almost constant in recent years. There are no plans for a significant increase in the near future. Thus, the ratio of ODA to GNP fell to 0.32% in 1994 and will probably fall further, despite the government's claim to strive for the long-term goal of a 0.7% ODA/GNP-ratio.

2. Compared to development aid, trade and private capital flows are far more important in volume. Exports to and imports from developing countries each amounted to about 100 billion DM

Zusammenfassung

In diesem Artikel wird ein Überblick über die Ziele und strategischen Ansätze der Deutschen Entwicklungshilfe gegeben. Die Angaben basieren im wesentlichen auf einem Memorandum der Bundesrepublik Deutschland an die OECD/DAC Aid Review 1994/95.

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in recent years, representing one-sixth of German external trade. Private capital flows in the form of direct investment, securities and bank credits to developing countries totalled 10 billion DM in 1994. However, these private, commercial flows are concentrated on a dozen large (China, India) and "Newly Industrializing Countries" (NIC), whereas the other, more than 100 developing countries do not (yet) benefit from intensive economic relations with Germany.

3. German development policy focuses on the priority development needs in the partner countries, and the global tasks facing both the developing and the industrialised countries. The German government therefore concentrates its activities of development cooperation on three areas:

- Poverty alleviation, which is the key prerequisite for socially just and peaceful development. This also includes the support of structural reforms at the levels of government and society as a whole, as well as the promotion of private-sector initiatives.
- Protection of the natural resource base on which life depends. This includes environmental protection programmes, the promotion of renewable resources of energy, the provision of advisory services for establishing national environmental administration, and assistance in the formulation of environmental policy.
- Promotion of education and training in the developing countries.

4. No country whatsoever has developed because of external development assistance only. History shows that successful development has always had its origin in internal factors; particularly in development-committed elites and governments capable of launching basic reforms (in agriculture, education, and health), setting realistic development goals that were compatible with the respective social and cultural values and attitudes, and mobilizing a consensus among strategic groups with regard to these goals.

Development assistance can contribute effectively to supporting such genuine development efforts and has indeed had its best record where the internal conditions were conducive to development. Because of the importance of those internal political, social and economic conditions, the German government ties the scope and nature of its aid to the partner governments' efforts to create a climate conducive to development. This includes

- the protection of human rights,
- the rule of law,
- participation of the population in political decision-making,
- a market-friendly and social economic order,
- development-oriented government action.

For some developing countries which have clearly violated those conditions, German aid has been adjusted in volume or phased out in recent years.

5. Due to the stagnation in the volume of German development aid, the government is striving for a reduction in the number of recipient countries. This is made possible by the "graduation" of some developing countries, mainly in Asia, which "grow out" of development aid. Future cooperation with those countries will be based mainly on commercial and technological exchanges, but not on aid. On the other hand, there are a number of new recipient countries; e.g., Albania, the Central Asian Republics, the Republic of South Africa. However, there has been no shift of development aid funds to Eastern Europe. The assistance for Russia and other Eastern European countries has not been financed from the development aid budget.

6. Nearly 50% of German aid is allocated to projects in the areas of social, administrative and economic infrastructure. This percentage has declined in recent years due to the rising obligations for humanitarian aid (e.g. Ruanda) and debt relief. The expenditures for environmental protection projects rose from 15% (1988) to 30% (1993) of total aid.

7. In addition to development aid, the industrialized countries can make a decisive contribution to improving the development prospects of the Third World by, inter alia,
- liberalizing access to their markets,
- reforming their agricultural policies,
- achieving and maintaining sustainable growth with low inflation and low interest rates,
- intensifying their efforts to save energy and restructure their economies in line with ecological requirements.

8. The high demand for investments in infrastructure in developing countries can neither be met through development aid nor through the public budgets in the developing countries. New forms of private financing and public-private partnerships for infrastructure investments have to be tested to meet the necessities in developing countries. This requires a more active role for the private sector in industrialised and in developing countries. In future, it will be mainly the task of the private sector to promote infrastructure investments (airports, telecommunication networks, power plants), provide financing through banks and cover the investment and operating costs through tariffs, which have to be guaranteed by the government. In many countries, particularly in Asia, leasing or "build-operate-transfer"-schemes are being tried out as instruments for infrastructure provision. Such arrangements are very complicated and require a stable political and economic environment. But they indicate a clear trend towards a greater role for the private sector in times of limited public budgets.

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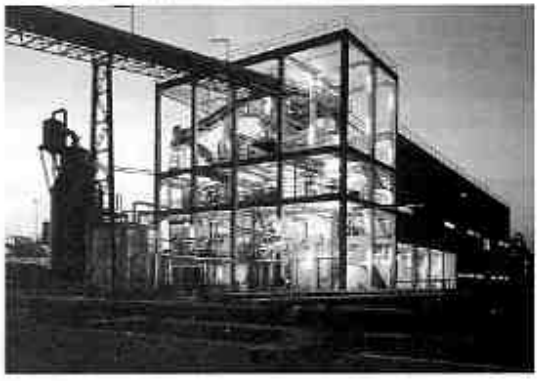

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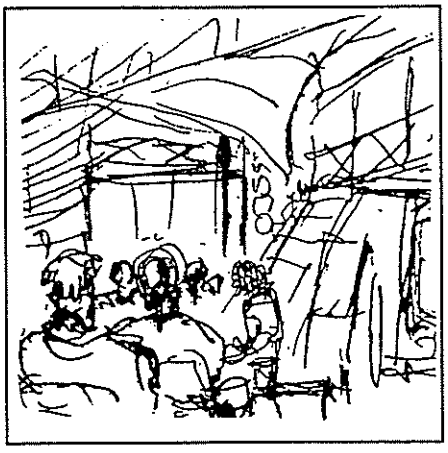
Architektur

Eda Schaur (ed.). Intelligent Bauen. Aspekte einer anderen Baukultur. IL 41. 268 S., ISBN 3-7828-2041-X, 1995. DM 49,-. Institut für leichte Flächentragwerke, Pfaffenwaldring 14, 70569 Stuttgart.

Der voluminöse Band, im bewährten IL-Querformat, enthält die Vorträge des im November 1993 in Stuttgart abgehaltenen Symposiums mit dem gleichen Titel. Wie bei derartigen Veranstaltungen kaum zu vermeiden, umfassen die 30 eher zufällig zusammentreffenden Beiträge ein extrem weites Spektrum an Themen. Fast alle Kapitel sind interessant, und viele Themen sehr gut behandelt. Es ist mehr als erfreulich, daß diese Texte jetzt dokumentiert und damit allgemein zugänglich sind. Einen besonderen Nutzen haben natürlich die Konferenzteilnehmer selbst, die sich an den einen oder anderen Vortrag erinnern und gerne noch einmal die Details nachschlagen wollen.



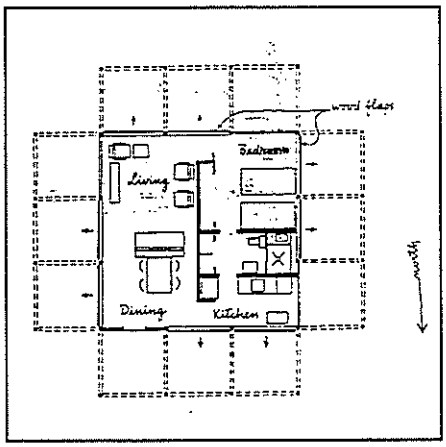
Brenda und Robert Vale. Ökologische Architektur. Entwürfe für eine bewohnbare Zukunft. 192 S., ISBN 3-593-34522-6, 1991. DM 78,-. Campus Verlag Frankfurt.

Brenda und Robert Vale gehören zu den Pionieren des ressourcensparenden Bauens, und haben Ihre ersten Bücher zu dem Thema schon in den 70er Jahren geschrieben. Sie sind ihrer Linie treu geblieben, haben aber auch nicht viel hinzugelernt, wenn man das vorliegende Buch zum Maßstab nimmt.

Nach wie vor geht es um Energieeinsparung bei Bau und Nutzung von Gebäuden, und um eine architektonisch anregende Umsetzung dieser Prinzipien – hier vielfältigst an 'zig Beispielen aus der ganzen Welt illustriert. Doch 'ökologisches Bauen' (selbst 'Green Architecture' wie es im englischen Originaltitel heißt) sollte weiter greifen. Kein Wort über Baubiologie, Stoffdurchgänge, Fassadenbegrünung, städt. Gartenbau, Wasser-Reduzierung und Recycling, Entsiegelung, autofreies Wohnen usw. Es bleibt ein buntes Architekturbuch mit Öko-Touch – oder wie die Engländer sagen: ein Coffee-Table Book. Als solches immerhin gut gemacht.

Gustau Gili Galfetti. Casas Refugio / Private Retreats. 144 S., ISBN 84-525-1651-6, 1955. Gustavo Gilli, Barcelona.

Thema des Bildbandes sind Minimalhäuser aus der ganzen Welt, entstanden zwischen 1923 und 1993. Nach einer historischen Einleitung folgen gebaute Beispiele geordnet nach vier Konzeptideen: Baukasten – Lochfassade – Box – Versteck in der Natur. Obwohl es sich in der Mehrzahl um von berühmten Architekten entworfenen Ferien-'hütten' handelt, können die Beispiele unerwartete Anregungen geben zur Gestaltung von Behausungen in Slums und Squatter Siedlungen: die Anforderung, die wichtigsten Wohnfunktionen auf minimalem Raum unterzubringen, sind identisch. Unter diesem Gesichtspunkt, den der Verfasser übrigens nicht erwähnt, eine spannende Beispielsammlung.



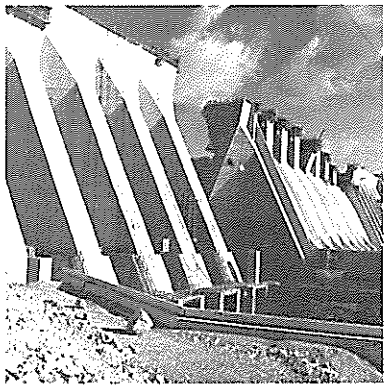
UNESCO. Guía del Patrimonio Mundial. 734 S., ISBN 92-3-303033-4. 1994, FF 260,-. Editorial Incafo, Madrid. Zu beziehen über UNESCO Publicions, 1, rue Mollis, F-75732 Paris.

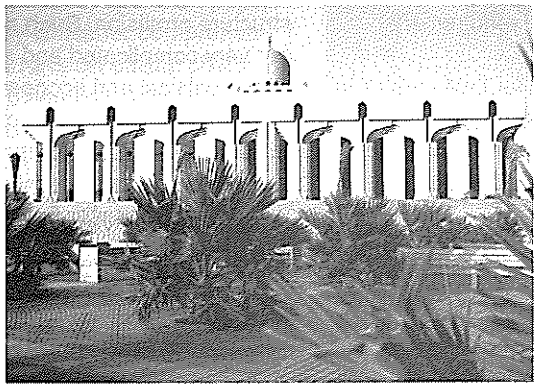
Dieser Katalog enthält alle 411 bis Ende 1993 von der Unesco als *Zeugnisse der Menschheitskultur* anerkannten Bau- und Kulturdenkmäler. Die Eintragungen sind nach Kontinenten und Ländern jeweils von Norden nach Süden geordnet, und zusätzlich auf Landeskarten noch einmal visuell aufgezeigt. Zu jedem Denkmal gibt es eine Beschreibung, aus der insbesondere auch der Grund für die Auszeichnung hervorgeht, das Jahr der Aufnahme in die Liste, der nächstgelegene Flughafen und die Anfahrt von dort aus sowie der Ort mit den nächsten Unterkunftsmöglichkeiten. Auch Kunstdruck-Farbphotos der Denkmäler sind abgedruckt – leider sind jedoch die in vielen Fällen die Aufnahmen relativ nichtssagend und entsprechen nicht der ästhetischen Bedeutung der abgebildeten Objekte. Für Architekten, die sich international mit dem Thema 'Kultur und Bauen' beschäftigen, stellt dieses Verzeichnis ein einmaliges Nachschlagewerk dar.

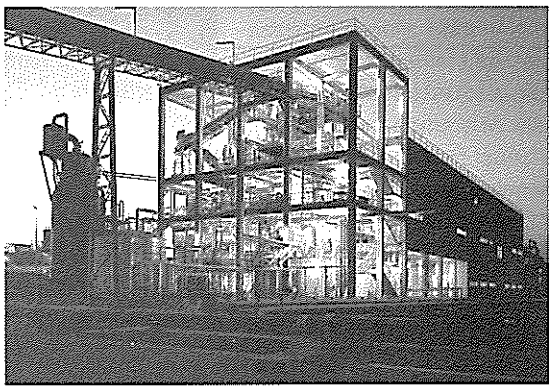
Alain Sèbe, Daniel Richelet. Issoulane. Das Tassili-Gebiet in der Sahara. 216 S. ISBN 3-89155-037-5. DM 118,-. 1987. Shillinger Verlag, Freiburg.

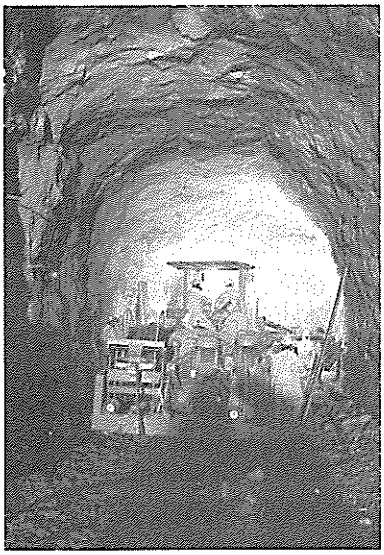
Ein überformatiger Bildband über das Tassili-Gebiet im südlichen Algerien, an der Grenze zu Mali und Niger. Der begleitende

ZÜBLIN WORLDWIDE









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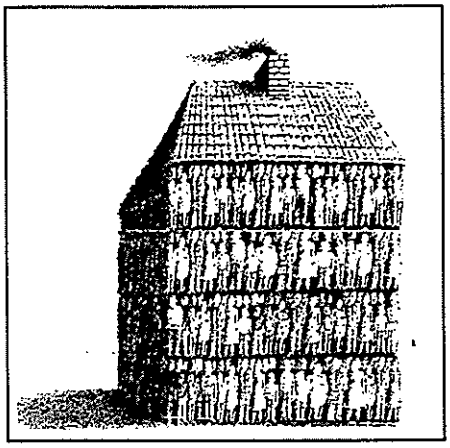
Text und die geologisch ausgerichtete Einführung wurden von Daniel Richelet geschrieben, während die ausgezeichneten Fotos von Alain Sèbe stammen. Die Landschaft ist gekennzeichnet von durch Sandstürme (horizontal) erodierte Felsmassive vulkanischen Ursprungs, die sich aus der weiten Wüstenebene erheben. Die Fotos sind in neun Stationen aufgeteilt, die sich über eine Strecke von mehreren Tausend Kilometern erstrecken. Es handelt sich um eine 'Architektur der Natur'; nur im letzten Abschnitt sehen wir auch bauten und Dörfer der Tuareg, die diesen Wüstenabschnitt bewohnen. Auch das Porträt eines dieser Menschen – oder eines Kamels (offenbar die einzigen fotogenen Tiere in dieser Wildnis) sehen wir ab und zu – die Landschaft ist immerhin einmalig genug und bedarf keiner Ablenkung. Fast schon ein Juwel, weniger ein Buch.

Wohnungsversorgung

Adelheid von Saldern. Häuserleben. Zur Geschichte städtischen Arbeiterwohnens vom Kaiserreich bis heute. 488 Seiten, ISBN 3-8012-4058-4, 1995. DM 80,–. Verlag Dietz Nachf., Bonn.

Die Autorin, Professorin für neuere Geschichte in Hannover, schildert die Geschichte des urbanen Wohnens von Arbeitern in Deutschland seit ca. 1870. Sie untersucht in 5 großen zeitlichen Abschnitten (Kaiserreich, Weimarer Republik, 'Drittes Reich', Nachkriegsära, Reformperiode (70/-80er Jahre) in BRD und DDR die Wohnformen der Menschen aus zwei Perspektiven: einmal schildert sie die Entstehung der Arbeiterwohnquartiere und ihre architektonischen Besonderheiten unter sozialgeschichtlichen Gesichtspunkten. In einer zweiten Sicht analysiert sie, wie sich die Menschen ihre Wohnungen und das Wohnumfeld aneigneten, welche Formen des Zusammenlebens sich dabei entwickelten, wie Frauen, Männer und Kinder unterschiedliche Areale besetzten, wie sich die umgebenden politischen Verhältnisse im Wohnalltag ausdrückten. Im Gegensatz zu den meisten Geschichts- und Architekturbüchern wird hier nicht Herrschafts-Geschitsschreibung betrieben, sondern die tendenziell mittellose 'Masse' einschließlich der Frauen, Obdachlosen, Hausbesetzern steht im Mittelpunkt. Eines der interessantesten Bücher über die Wohnungsfrage seit Langem.



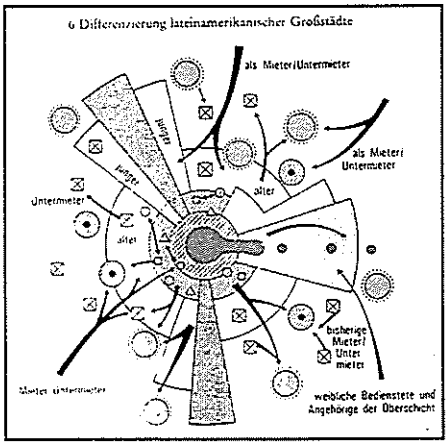
Nabeel Hamdi. Housing without Houses. Participation, flexibility, enablement. 194 Seiten, ISBN 1-85339-292-8. 1995. £ 13,–. IT Publications, 103 Southampton Row, London WC1B 4HH, UK. (Paperback-Ausgabe der Originalveröffentlichung von 1991, s.a. Rezension TRIALOG 36, S.71)

Der Titel des Bandes erinnert, sicher nicht ohne Absicht, and Rudolfsky's 'Architecture without Architects', zielt aber inhaltlich auf die jüngere und jüngste Fachdebatte in Sachen *Wohnungsbau für untere Einkommensgruppen.* Schlagwort: *'Enabling Strategies'.* Die Referenzautoren sind John Turner (er bedankt sich dafür mit einem Vorwort) und Habraken. Doch als Mitarbeiter des MIT konnte Hamdi auch genügend eigene Erfahrungen sammeln die hier innovativ eingebracht wurden – z.B. die zusammen mit Reinhard Goethert entwickelte Methode des *Micro Planning.* Wie die zitierten Positionen vermittelt der Band in erster Linie eine allgemeine Philosophie, die der Autor witzig und mit anregenden Illustrationen darlegt. Konkret wird der Autor, wenn es um Methoden des partizipativen Entwurfs geht. Ohne dem Fehler eines Patent-Rezepts zu verfallen, zeigt er eine Reihe von unterschiedlichen und möglichen Beispielen auf, viele davon unter Zuhilfenahme von räumlichen Modellen. Mit diesem offenen Konzept zielt die Publikation gleichermaßen auf studentisches Publikum wie auf die Betroffenen selbst. Sie lädt zum Blättern, Zurückblättern und Querlesen ein; ein Handbuch für die Praxis darf man dabei nicht erwarten. Eher ein Buch, das Interesse weckt.

Stadtentwicklung

The World Bank. Better Urban Services. Finding the Right Incentives. 84 p, ISBN 0-8213-3232-5, 1995. US$ 7,–. Washington DC: The International Bank for Reconstruction and Development.

Der Report zeichnet die Verschiebung der von der Weltbank geförderten Schwerpunkte in Stadtentwicklungsprojekten in den vergangenen zwanzig Jahren nach. Dabei geht es in erster Linie um die Prinzipien. Das heißt, über die Natur oder gar Einzelheiten der verschiedenen städtische Dienstleistungen, auf die der Titel des Bandes hinweist, wird kein Wort verschwendet. Stattdessen heißt das zentrale Thema *Dezentralisierung* – und hierüber hat auch die Weltbank schon andere, und wohl auch bessere, Publikationen herausgebracht. Immerhin, in der Kürze liegt die Kunst, und hier liegt der Band mit 80 Seiten gut im Rennen. Die drei zentralen Weisheiten, die vermittelt werden, heißen: Erstens sollen die Verantwortlichkeiten der verschiedenen Regierungsniveaus klar voneinander getrennt werden, d.h. Überschneidungen von Aufgabenbereichen zwischen verschiedenen Akteuren führen dazu, daß sich niemand voll verantwortlich fühlt. Zweitens muß bei der Verteilung der Aufgabenbereiche auch die Bereitstellung der erforderlichen Mittel geklärt werden, was sich eigentlich von selbst versteht, aber leichter gesagt als getan ist. Und schließlich müssen die verantwortlichen Institutionen über die Erfüllung ihrer Aufgaben rechenschaftspflichtig sein, und zwar sowohl nach oben (Zentralregierung) wie auch nach unten (Bürgerschaft). Der zuletzt aufgeführte Bemerkung ist übrigens auch der einzige Hinweis auf die Interessen und Bedürfnisse der Nutzerinnen und Nutzer – alles andere bezieht sich allein auf administrative Aspekte und die Position der Weltbank.



Jürgen Bähr, Günter Mertins. Die lateinamerikanische Stadt. Verstädterungsprozesse und Stadtstrukturen. 238 Seiten, ISBN 3-537-11230-X, 1995, DM 50,–. Wissenschaftliche Buchgesellschaft Darmstadt.

In Nachfolge des veralteten Werkes 'Südamerika im Spiegel seiner Städter' von 1952 versteht sich diese Publikation als aktualisiertes Standardwerk zu dem Thema. Wichtigste Grundlage sind verschiedene Forschungsarbeiten an den Geographie-Fakultäten in Marburg und Kiel, insbesondere ein VW-gefördertes Projekt der beiden Verfasser. Grundfragestellung ist das Wachstum, die Verteilung und Verschiebung der verschiedenen Stadtsegmente innerhalb der Gesamtstadt, die vergleichend an den gegensätzlichen Konvergenz- und Divergenzthesen gemessen wird. In detaillierter Form werden historische Wachstumsphasen der Städte als Gesamtheit und Charakteristika ihrer Viertel (nach Nutzungstypen) nachgezeichnet und gewissenhaft durch Literaturverweise belegt. Abschließend wird der beschriebene Prozeß noch einmal exemplarisch an den Beispielen Lima, Rio und Bogotà aufgezeigt.

Das Buch kann als aktuelles und zuverlässiges Nachschlagewerk für urbane Studien in Lateinamerika empfohlen werden. Sein summarisch-deskriptiver Charakter und die nur sehr sparsam eingefügten Abbildungen stimulieren leider nur wenig zu Aha-Effekten bei den Leser/inne/n, wodurch es – von den Zonenmodellen abgesehen – als Einführungstext ungeeignet erscheint. Als den ganzen lateinamerikanischen Kontinent erfassende Arbeit stellt sie jedoch einen guten Überblick über den Stand der Forschung dar und ersetzt sie in vielen Fällen die zeitraubende Erst-Revision der vorhandenen Literatur zu einzelnen Städten und Ländern.

Arbeitskreis Stadterneuerung. Jahrbuch 1995. 337 Seiten, ISBN 3-7983-1647-3, 1995, DM 33,-. Institut für Stadt- und Regionalplanung, Publikationsstelle, TU DO 04, 10587 Berlin.

Das diesjährige Jahrbuch der Stadterneuerung gliedert sich in die Abschnitte 'Geschichte und Theorie', 'Praxisfelder', 'Ausland', (Studien-) 'Projekte' und 'Berichte und Rezensionen'. Zusätzlich gibt es zum fünfjährigen Jubiläum ein kumulatives Orts- und Autorenregister. Bei den Beiträgen über Deutschland steht Berlin, die größte Baustelle der Republik, im Vordergrund. Ein Entwicklungsländer-Bezug wird über zwei Aufsätze zu Lima (Hans Harms und Wiley Ludeña Urquizo) und ein Bericht über Dar es Salaam (Johannes Lückenkötter) hergestellt.

Der Umfang des Bandes zeigt die anhaltende, wenn nicht steigende, Aktualität des Themenfeldes Stadterneuerung. Für die Herausgeber/innen eine Herausforderung, deren Grenzen näher rücken und erkennbar sind: bei der Fülle des Materials erscheint eine rigorosere Auslese der Manuskripte und eine Beschränkung des Volumens für die einzelnen Beiträge sinnvoll, die Beiträge des Bandes, die qualitativ herausragen, kämen dann noch besser zur Geltung, und die ermüdende Wiederholung von Grundlagenwissen (insbesondere bei einigen der studentischen Beiträge) bliebe den Leser/inne/n erspart. Auch in der visuellen Präsentation wäre es nach fünf Jahren Zeit für einen Qualitätssprung: zwar wurde gegenüber dem ersten Band der Zeilenabstand der ewig langen Zeilen ein wenig vergrößert, und auch die häßlichen Löcher im Blocksatz sind inzwischen verschwunden, doch gute Lesbarkeit sieht anders aus. Dennoch hat sich das Jahrbuch als 'Institution' erwiesen, die erfunden werden müßte, wenn es sie noch nicht gäbe.

Manfred Haack. Bundeshauptstadt Berlin. Politisch-historischer Stadtführer. 190 Seiten, ISBN 3-8012-0227-5. 1995, DM 20,-. Verlag J.W.H. Dietz Nachf., Bonn.

Dieses Stadtporträt ist von einem Autor geschrieben, der die Materie auf das Intimste kennt. Leider ist es jedoch nicht gelungen, dieses Wissen auf eine hinreichend spannende Art und Weise zu vermitteln; auch über die Zielgruppe der Publikation hätte sich der Autor zuvor mehr Gedanken machen sollen: der erste Abschnitt des Buches ist als Touristenführer mit Wegbeschreibungen organisiert, doch hier fehlen die Orientierungskarten – auch langweilt die dichte Folge der Namen von Straßen, Haltestellen und Orientierungshinweisen. Im Hauptteil des Bandes wird dann Stadtgeschichte erzählt, in saloppen Stil für Leute, die keine wissenschaftlichen Abhandlungen mögen. Dazu passen viele ungewöhnliche Fotos, die neugierig machen. Doch, leider, der Text ergießt sich fast ohne Zwischenüberschriften oder, abgesehen von der Periodisierung, andere Gliederungsversuche über die Seiten – was eben nicht zum Schreibstil paßt. Wer jedoch die Geduld aufbringt und sich von vorne bis hinten durch die Kapitel frißt, wird mit vielen interessanten Details der Stadtentwicklung von Berlin belohnt, die in keinem anderen Stadtführer stehen. Für den Verlag sei angeregt, den Band von einem professionellen Lektor überarbeiten zu lassen – entweder als nach Örtlichkeiten organisierter Stadtführer, oder als reine Stadtgeschichte mit den entsprechenden Anmerkungen und Zwischenüberschriften.

Ismail Seralgedin, Michael Cohen, K.C. Sivaramakrishnan (eds). The human Face of the Urban Environment. 348 Seiten, ISBN 0-8213-3320-8. 1995. The World Bank, Washington D.C. (Vertrieb in Deutschland: UNO Verlag, Bonn)

Der Band dokumentiert eine Weltbank-Konferenz über 'Umweltbezogen Nachhaltige Entwicklung' *(Environmetally Sustainable Development)* vom Herbst 1994. Anders als bei den meisten anderen Konferenz-Proceedings liegt hier ein systematisch aufgebautes Gesamtwerk mit fast ausschließlich hoch qualifizierten Autoren vor: die Weltbank hatte die nötigen Mittel, gezielt Experten zu den gewünschten Themen anzusprechen und zu bezahlen. Unter den über 70 Autoren (viele davon in Weltbank Projekte involviert) finden wir bekannte Namen wie Peter Hall, Charles Correa, Sheela Patel, Arif Hasan, Ayse Kudat, Jochen Eigen, Alain Bertaud. Jedes Kapitel hat im Schnitt 3 bis 5 Beiträge plus Anmerkungen eines Diskussant, sowie die Mitschrift der Konferenz-Diskussion. Behandelt werden die klassischen Themen der Stadtökologie: Landverbrauch der Städte, Luftverschmutzung, Müll, Wasser, Abwasser, Umweltfaktoren der Gesundheit. Eine zweite Runde von Beiträgen beschäftigt sich mit Strategien und Management: Netzwerke und Programme, Bodenpolitik, Foren der Umweltminister / Bürgermeister / Betroffene.

Die thematische Überlappung mit dem Umweltschwerpunkt der Habitat II Konferenz ist evident; man könnte fast glauben, die Weltbank wollte UNCHS die Schau stehlen. In jedem Fall wurden Weichen für Istanbul gestellt, wobei der Schwerpunkt von dem Thema 'Recht auf Wohnung' hin zur Stadtökologie verlagert wurde. Dies liegt sicher auch im Sinne der Weltbank, wie auch der eingeladenen Bau- und Umweltminister. Dennoch, für das behandelte Thema ein sehr nützliches Werk, und eine der besten Weltbank-Publikationen, die in der letzten Zeit erschienen sind.

Fritz Fezer. Das Klima der Städte. 199 S., ISBN 3-623-00841-9. 1995; DM 56,-. Justus Perthes Verlag, Gotha.

Unter stadtökologischen Gesichtspunkten bleibt der Aspekt der Luft gegenüber Abwasser, Müll, Verkehr in den meisten Planungsbüchern eher im Hintergrund. Wenn das Thema jedoch behandelt wird, ist eine strikte Trennung zwischen Mikroklima und Luftverschmutzung üblich. In dem vorliegenden Werk sind beide Aspekte wohl das erste Mal gleichermaßen kompetent und umfassend beschrieben – womit die Fachliteratur zur nachhaltigen Stadtplanung um einen wertvollen Titel erweitert wurde. Die vielen und konkreten quantitativen Werte sind besonders hervorzuheben. Zu kritisieren wäre bestenfalls, daß ein Großteil der Daten aus Sekundärliteratur übernommen wurde ohne

auch auf die teilweise umstrittene Natur dieser Quellen hinzuweisen. Besonders fällt dies bei der Übernahme gewisser Klischees zum 'tropischen Bauen' auf, wie die Windtürme und Innenhöfe des arabischen Hauses (S. 168). Davon abgesehen jedoch eine empfehlenswerte Anschaffung.

John K. Davies; Michael Kelly (eds). Healthy Cities. Research and Practice. 188 S., ISBN 0-415-07792-3, £ 13,-, 1993. Routhledge, London.

Das Healthy Cities Projekt ist eine Initiative der World Health Organization (WHO), das offiziell 1986 ins Leben gerufen wurde. Allein in Europa haben sich ihr – formal – rund dreißig Städte und Gemeinden angeschlossen. In der Praxis heißt dies allerdings in einigen Fällen nur die Belegung einer halben Planstelle mit der Verfolgung der Projektideen. Die Grundidee des Programms könnte (in Ergänzung des Proverbs 'mens sana en corpore sano') umschrieben werden: 'ein gesunder Körper in einer gesunden Stadt'. Es geht um die Verbesserung der Volksgesundheit durch Präventivmedizin, wozu auch ein Abbau der Umweltbelastungen gehört – im weitesten Sinne auch der Schutz des ökologischen Gleichgewichts. Damit ist das Programm in seinen Zielen nicht allzu weit entfernt vom jüngeren 'Sustainable Cities Programm' der UNCHS.

Das vorliegende Buch hat seinen Ursprung in einer 1991 in Glasgow abgehaltenen Konferenz. Auch wenn es nirgendwo explizit erwähnt wird, scheint es sich um eine Sammlung überarbeiteter Konferenzbeiträge zu handeln. So rekrutieren sich die meisten Autor/inn/en aus dem Umfeld der gastge-

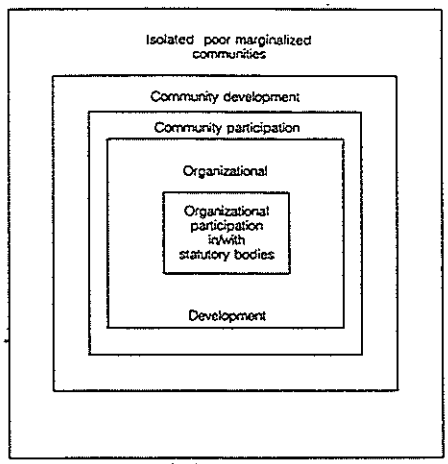


Figure 5.1 Levels of participation

benden Institution: nur 6 der 16 Autoren kommen aus dem Ausland. Ohne Ausnahme handelt es sich um Akademiker des Gesundheitswesens oder Angestellte von Gesundheitsämtern, was wohl auch als Indiz für die Schwäche des Programms gedeutet werden kann: dem Defizit an multidisziplinärer Kooperation. Insofern kann sich die Publikation nicht vom Mief der Fachsimpelei befreien und ist für Mitglieder anderer Berufsgruppen nur von begrenztem Interesse.

FHC, A la Busqueda de Ciudades Sostenibles. 370 Seiten, 1994/95. Fundación Habitat Colombia, Carrera 4a No 66–66. AA 249 4629. Bogotà, Kolumbien.

Konferenzpapiere der Dritten Internationalen Treffens der kolumbianischen Dachorganisation von Wohnungs-NROs, Habitat Colombia, vom 20–24. September 1994 in Perreira. Die 24 Beiträge bewegen sich zumeist auf der philosophischen ("was bedeutet nachhaltig?") oder politischen (die strukturelle Anpassung ist an allem Schuld!) Ebene. Nur einige Projektberichte am Ende der Aufsatzsammlung enthalten konkrete neue und verwendbare Fakten. Somit liegt der hauptsächliche Wert der Veröffentlichung, wie der ihr zugrundeliegenden Veranstaltung, in der Förderung des ökologischen Bewußtseins unter Planer/inne/n und Politiker/inne/n.

NBHBP, The Ecological City. 106 S., ISBN 91–7147–171–5. 1995. Boverket, the National Board of Housing, Building and Planning. Publikationsservice, Box 534, S–37123 Karlskrona, Sweden.

Der Bericht dokumentiert die Ergebnisse eines OECD Projekts mit dem Ziel einer stärker Umwelt-orientierten Entwicklung schwedischer Städte. Einführende Kapitel erläutern den nationalen Kontext des Programms, gefolgt von einem Überblick über die zentralen Themen der Stadtökologie: Umwelthypothek, gesundheitliche Risiken, Transport und Verkehr, Infrastruktur (hier: Müll, Wasser, Abwasser, Energie), Umweltschutz (Artenvielfalt, Landkonsum, städt. Grün); kulturelles Erbe. Der Hauptteil des Berichts schildert die spezifisch schwedischen Anstrengungen zur konkreten Umsetzung der dargestellten Prinzipien, insbesondere die verschiedenen gesetzlichen Maßnahmen und nationalen wie städtischen Programme. Empfehlungen für weiteres Vorgehen, insbesondere eine stärkere Einbeziehung der Bevölkerung in das Programm, folgen als Resümee. Eine Fallstudie von Gotheburg, der zweitgrößten städtischen Agglomeration Schwedens nach Stockholm, findet sich im Anhang und illustriert ein Vorgehen, das – ähnlich wie das Sustainable Cities Programm der Vereinten Nationen (UNCHS) – auf Kooperation aller sozialen Gruppen baut.

Als nationaler Forschungsbericht stellt die Publikation eine adäquate und brauchbare Information dar. Der Titel allerdings suggeriert ein allgemeingültiges Werk, um das es sich in keinster Weise handelt. Ein ehrlicherer Titel wäre anzuraten und wäre möglicherweise umweltfreundlicher, wenn dadurch weniger Interessierte das Werk ordern sollten und so Papierabfälle vermeiden hälfen.

Mario Kahl, Doris Klughardt, Sven von der Ohe. Seeing behind the Trees. ISBN 3–88156–644–9. 1995. DM 44,–. Breitenbach Verlag, Saarbrücken.

Der Band vereint auf dem Hintergrund von durch das ASA Programm geförderten Arbeits- und Studienaufenthalten in Afrika, Asien und Lateinamerikas zwölf Beiträge zu diesem entwicklungs- und umweltpolitisch unvermindert hochaktuellen Thema. Gemeinsam ist den Beiträgen vor allem auch das im Titel zum Ausdruck kommende Engagement zugunsten der von Umwelt- und Naturzerstörung zumeist betroffenen ärmeren Bevölkerung. Viele Beiträge zeigen auch, daß auch bei unbedacht und einseitig auf Naturschutz und Nutzungsvermeidung gerichteten Projekten die gleichen Gruppen erneut zu den Benachteiligten gemacht werden können. Das Buch wendet sich sowohl an 'Einsteiger', die sich mit der Problematik der Tropenwaldzerstörung auseinandersetzen wollen, als auch an 'Eingeweihte', die ihre Kenntnisse durch die Lektüre ausgewählter Fall- und Länderbeispiele vertiefen wollen.

Peter Müller-Rockstroh, ASA Programmleiter

Partizipation

Ariane Bischoff; Klaus Selle; Heidi Sinning. Informieren, Beteiligen, Kooperieren. Kommunikation in Planungsprozessen. Eine Übersicht zu Formen, Verfahren, Methoden und Techniken. 174 S. ISBN 3–929797–11–9. 1995. DM 42,–. Dortmunder Vertrieb für Bau und Planungsliteratur, Gutenbergstraße 59, 44139 Dortmund.

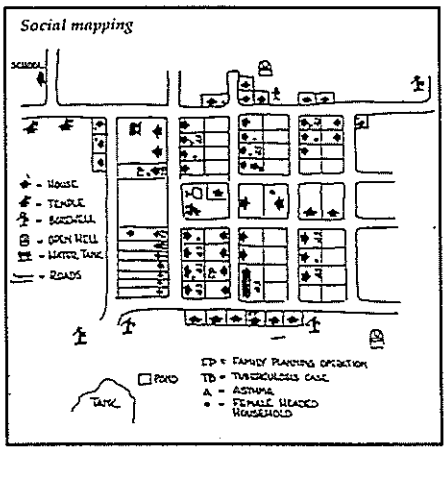
Nachdem die Macht (heißt: Finanzkraft) der öffentlichen Hand im Zuge neo-liberaler Politiken der Schwindsucht anheimgegeben worden ist, lassen sich auch planerische Entscheidungen nicht mehr so leicht ohne die Kooperation aller sozialen Gruppen umsetzen. Partnerschaften mit privaten Investoren ('public-private partnerships') stießen schnell an ihre Grenzen, waren sie doch naturgemäß an Rediteperspektiven gekoppelt. Als dritter Partner bleibt der Tertiäre Sektor übrig, d.h. die Nutzer/innen. Um ihre Unterstützung zu gewinnen, besinnen sich Entscheidungsträger (-innen?) auf die fast in Vergessenheit geratenen Tugenden der Bürgerbeteiligung, deren Forderungen viele noch aus den 60er und 70er Jahren kennen. Über die Jahre haben sich natürlich viele Konzepte verändert, Praktiken wurden erprobt und weiterentwickelt. Das Ideal der Basisdemokratie ging zwar nicht verloren, doch die Notwendigkeit zu Kompromissen zwischen verschiedenen sozialen Kräften ist als Realität nicht mehr zu übersehen.

Eine Differenzierung der Konzepte legt auch die Anpassung möglicher Partizipationsmodelle an die konkrete Situation nahe: jeder Fall ist verschieden. Für die beteiligten Planer/innen ist daher die Kenntnis eines weiten Spektrums an Co-operationstechniken eine unerläßliche Voraussetzung. Als Hilfestellung hierzu erschienen in der letzten Zeit eine Reihe von Handbüchern, wie z.B. von IIED (siehe Rezension TRIALOG 44, S. 57), David Wilcox (s. Rezension TRIALOG 46, S.70) oder von Luis Ramalho (DED/-SACTES Recife, 1995, vergriffen). Jetzt liegt auch ein entsprechende Handbuch in deutscher Sprache vor. Der Band von Bischoff, Selle und Sinning gibt einen umfassenden Überblick über fast alle gängigen Methoden der Bürgerbeteiligung bei der Stadt- und Regionalplanung; der Maßstab des Hauses oder der Hausgruppe wurde allerdings ausgeklammert. Im ersten Teil werden eher konventionelle und z.T. gesetzlich festgelegte Verfahren beschrieben, während im zweiten Teil der Schwerpunkt auf Gruppenentscheidungen gelegt wird – obwohl der Übergang zwischen beiden Ansätzen fließend ist. Eine gründliche Arbeit, die bei allen Partizipations-Praktikern im Regal stehen sollte.

Michael Schönhuth, Uwe Kivelitz. Participatory learning Approaches. An Inroductory Guide. Schriftenreihe der GTZ No. 248. 183 Seiten, ISBN 3-9801067-5-6, 1994. TZ Verlag Rossdorf.

Das Handbuch ist zwei Methoden der partizipativen Projektplanung gewidmet: dem in den 80er Jahren entwickelten RRA – *'Rapid Rural Appraisal'* und dem daraus weiterentwickelten PRA – *'Participatory Appraisal'* (auch *'Relaxed Appraisal'*), das mehr Raum für Eigeninitativen der Zielgruppen freihält. Geschrieben wurde die Broschüre in erster Linie für alle, die die Methode noch nicht kennen; insbesondere für Projektleiter in der Entwicklungszusammenarbeit und andere Projekt-Mitarbeiter. Nach relativ ausführlicher Vorstellung der beiden Methoden folgen Kurzbeschreibungen anderer verwandter Ansätze, wie

- Agroecosystem Analysis (AEA)
- Rapid Organizational Appraisal (ROA)
- Participatory Learning Methods (PALM)
- Participatory Action Research (PAR)



• Partic. Assessment, Monitoring and Evaluation (PAME)
• Ethnographic approaches.

Der nächste Abschnitt stellt einen 'Werkzeugkasten' von einsetzbaren Übungen, Spielen usw dar, wie Modelle, Spontantheater, Schautafeln und vieles andere mehr. Den Abschluß bilden sehr ausführliche Listen von weiteren Ressourcen, Adressen, Büchern etc. Eine Schatzkiste an Informationen!

Lateinamerika

IRPUD (Hrsg.). Cuba 1994 – Das Ende eines Traums? Excursionsbericht am Institut für Raumplanung, Universität Dortmund. 60 S., 1994. Erhältlich für DM 7,– plus DM 2,50 Versandkosten von Dortmunder Vertrieb für Bau- und Planungsliteratur. Gutenbergstraße 59, D-4139 Dortmund.

Kathrin Wolff, Irma Leinauer; Birgit Hunkenschroer, Stephan Heerde. Ein steiniger Weg. Stadterneuerung in La Habana/Cuba. Der Barrio Cayo Hueso. Projektbericht 26. 160 S., 1993/94. DM 10,– plus DM 2,– Versandkosten. Institut für Stadt- und Regionalplanung, TU Berlin, Publikationsstelle DO 02, Dovestraße 1, 10787 Berlin.

Beide besprochenen Arbeiten sind Ergebnisse von fachlich motivierten Student/-inn/en-Reisen nach Cuba. Im ersten Falle der Dortmunder Dokumentation handelte sich um eine relativ kurze Informationsreise, die den Teilnehmer/inne/n einen Überblick über das aktuelle Planungsgeschehen auf der Insel vermitteln sollte. Die gesammelten Informationen wurden in einem übersichtlichen Bericht festgehalten. Dieser ist bestens geeignet, auch künftigen Reisenden mit ähnlichen Interessen schnell und zuverlässig eine fachliche Einführung zu vermitteln. Natürlich beziehen sich einige der Beobachtungen auf die extreme Mangelsituation der Periodo Especial, die zum Zeitpunkt der Exkursion ihre kritischste Phase hatte und inzwischen zumindest teilweise und in dieser Form als überwunden angesehen werden kann.

Die Berliner Arbeit ist anspruchsvoller angelegt und geht wesentlich stärker ins Detail. Sie dokumentiert eine Gruppen-Studienarbeit an der TU Berlin, die neben den allgemeinen landesweiten Informationen speziell die Situation Havannas und seines Stadtteils Cayo Hueso darstellt. Ausgehend von europäischen bzw. Berliner Erfahrungen der behutsamen Stadterneuerung wurde in Rückkoppelung mit Kolleg/inn/en des strategischen Stadtteilbüros (Taller de Transformación Integral) in Cayo Hueso ein angepaßtes Entwicklungskonzept für diesen heruntergekommenen Stadtteil ausgearbeitet. Außer den Erfordernissen als Studienleistung für die Autor/inn/en und Informationsquelle für Interessenten in Deutschland stand somit ein entwicklungspolitisch motivierter professioneller Beitrag für die cubanischen Partner/innen vor Ort im Vordergrund – auf der Basis von ähnlichen Modellen und Prozessen im Ausland, die für Cuba noch Neuland darstellen.

• Emily Hatchell, Simon Calder. In Focus Cuba. A Guide to the People, Politics and Culture. 75 Seiten, ISBN 0-906156-95-5. 1995, £ 6,–.

• Hernando Calvo Ospina. Salsa – Havana Heat, Bronx Beat. 150 S. ISBN 0-906156-98-X, £ 10,– incl. Porto, 1995. Enthält Gutschein für kostenlose Salsa-CD.

Beide Bände sind erschienen beim Latin American Bureau, 1 Amwell Street, London EC1R 1UL (Versand plus £ 2,–). Vertrieb in Deutschland auch durch: Lateinamerika-Nachrichten, Gneisenaustr. 2, 10961 Berlin.

Unter der Schwemme der letztlich erschienen Cuba-Bücher sticht der unscheinbare Band von Hatchwell und Calder durch auch für Landeskenner/innen beeindruckende Sachkenntnis, Objektivität und Prägnanz hervor. Die Autoren setzen sich mit fast alle heißen, und aktuell ambivalent diskutierten Themen aus den Bereichen

- der Geschichte (Kommunismus; Markt; Wende),
- aktuelle Politik (pol. Organisationen; Staatssicherheit; Beziehungen zur USA),
- Ökonomie (Planwirtschaft; Parallelwirtschaft; Tourismusindustrie; neue Trends)
- Soziologie (Ethno-Gemisch; Religion; Frauen; Bildung)
- Kultur (vom Son zur Salsa; Film; Literatur; Sport)

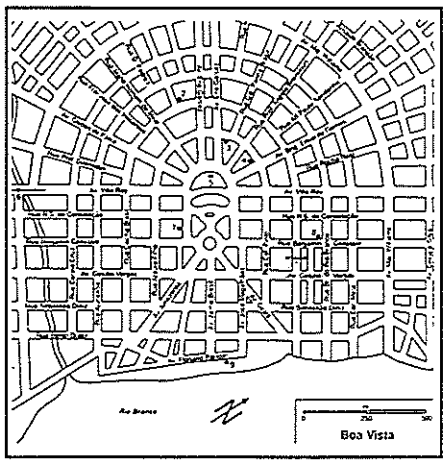
auseinander, ohne ein Blatt vor den Mund zu nehmen. Die Existenz politischer Gefangener wird kritisch kommentiert, ohne zu vergessen, an gegebener Stelle auch auf die zahlreichen humanen und sozialen Vorzüge hinzuweisen, die weltweit als einmalig bezeichnet werden können. Vielleicht die beste Buch-Neuerscheinung zu Kuba seit langem!

Wo das zuvor beschriebene Buch aufhört (bei der Kultur), setzt das zweite Buch von Calvo Ospina ein. Die Entwicklung der verschiedenen Salsa-Strömungen wird nicht nur lebendig nachgezeichnet, sondern durch viele weitgehend unbekannte Detailinformationen in spannender Weise ergänzt. So erfahren wir z.B., daß der inzwischen weltbekannte Ohrwurm Guantalamera einmal eine Grundmelodie war, zu der ständig wechselnde Nachrichten im Radio vorgesungen wurden. Wer weiß schon, daß Rhythmen wie Guajira, Danzón und Danzonete, Son und Sonero, Bolero, Guaracha, Guaguancó, Mambo, Cha-cha-cha alle auf Cuba geboren wurden? Das Buch geht aber weiter: Adaptionen der Musik auf anderen karibischen Inseln, in den USA, Kolumbien und dem Rest der Welt... Ein Buch, nicht nur um mitreden zu können: es ist tatsächlich sehr interessant.

• Rafael Sevilla, Darcey Ribeiro (Hrsg.). Brasilien – Land der Zukunft? 334 Seiten, ISBN 3-89502-031-1. 1995, DM 38,–. Horlemann Verlag, Postfach 1307, D-53582 Bad Honnef.

• Christian und Mariana Eifel. Brasilien-Reisehandbuch. 430 S., ISBN 3-923821-17-4. 3. Auflage 1994, DM 39,80. Jens Peters Publikationen, Osterholzer Dorfstraße 45, D-28307 Bremen.

Bei beiden vorliegenden Bänden geht es um Brasilien, doch Betrachtungswinkel und



Zielgruppe unterscheiden sich erheblich. Der akademisch ausgerichtete, von Sevilla und Ribeiro herausgegebene Band ist das Ergebnis eines vom Tübinger Institut für wissenschaftliche Zusammenarbeit gemeinsam mit der Friedrich Ebert Stiftung organisierten Länder-Seminars. Die 23 Beiträge beschäftigen sich in erster Linie mit der Deutung hervorstechender gesellschaftlicher Phänomene des heutigen Brasilien, und gliedern sich in folgende Abschnitte: Anthro-Geographie; Politik; Wirtschaft; Kulturwandel und Gesellschaft, Bildung und Wissenschaft; Literatur; Recht. Wie bei einem so umfangreichen Werk nicht anders zu erwarten, finden sich eine Reihe hervorragender und zum Nachdenken anregender Aufsätze – Informationen, die innovativ und daher nicht auch an anderer Stelle nachzulesen wären. Eine Ausnahme stellt der offiziöse Bericht zum Währungs-Stabilitätsprogramm des *Plan Real* von Pedro-Sampaio Malan dar, dem Brasilianischen Finanzminister, der als unkritische Selbstbelobigung langweilt. Gehaltvoller ist dagegen die Einleitung von Fernando Henrique Cardoso, dem heutigen Staatspräsidenten, über seine Entwicklungsvision für das Land – auch wenn eine gute Portion Zweckoptimismus nicht zu übersehen ist.

Das Reise-Handbuch von C. und M. Eifel richtet sich an seriöse, aber doch noch relativ unvorbereitete Touristen. Zwischen die praktischen Informationen über Sehenswürdigkeiten, Unterkünfte, Verkehrsverbindungen etc. sind Fachausätze über Schlüsselthemen (z.B. Favelas, Theologie der Befreiung, die Transamazonica, das Pro-Alkohol Treibstoff-Programm usw.) eingestreut, die über den Gehalt der Standard-Reiseführer hinausgehen. Als objektive und von Interpretationen freie Information über konkrete Tatsachen stellt der Band eine sinnvolle Ergänzung zum zuvor beschriebenen wissenschaftlichen Länderkunde dar.

Gender

Ana Falú; Liliana Rainero (Hrsg.). Habitat Urbano – una visión de género. 167 S. 1995. Narvaja Editor, Duarte Quiós 10, Local 4. Córdoba, Argentinien.

Der Band Enthält die Beiträge des 1993 von dem HIC-Sub-Komitee 'Frauen und Habitat' (Lateinamerika) organisierten Workshops. Josefina Huaman rekapituliert theoreti-

sche Positionen zu unterschiedlichen Bedürfnissen zwischen Männern und Frauen in Bezug auf Wohn- und Stadtraum, und setzt diese in Beziehung zu den gängigen Politiken der strukturellen Anpassung. Lucy Cardona und Gloria Vela setzen sich kritisch mit dem Verhältnis NROs und Staat auseinander, wobei sie sich auf die konkreten Erfahrungen eines Zentrums für alleinerziehende Mütter in Cali, Kolumbien berufen. Valentina Maccietto erläutert die Problematik der Kinderbetreuung von erwerbstätigen Müttern, während Rauel Leal und Elene Rubio über ein WUS Projekt zur kollektiven Kinderbetreuung durch Mütter und sich daraus ergebende Schwierigkeiten berichten. Frauenhäuser in Chile sind das Thema eines Beitrags von Pamela Caro Molina. In Montevideo, Uruguay, existiert ein interessantes Programm, MUJEFAS; zur Sanierung von Stadthäusern für alleinerziehende Frauen, wie Charna Furman berichtet. In Residencia (im Chaco) stellt die Stadtverwaltung, wie Alicia Mastrandea berichtet, neuerdings Frauen in bisher von Männern dominierten Dienstleistungen an – inclusive Müllabfuhr und Pflege der Parks.

Ein Autorinnenkollektiv analysiert die stadtplanerischen Implikationen in Cordoba, wo das Seminar stattfand. Teresa Azcarante nimmt sich der städtischen Umweltfrage aus der Frauenperpektive an, und vergleicht diese mit der konkreten Situation in Buenes Aires. Den Abschluß bildet ein Beitrag von Maria del Carmen Feijoo zum Verhältnis Feminismus und Regionalplanung – wobei sie eine gewisse Realitätsfremde in der Praxis konstatiert.

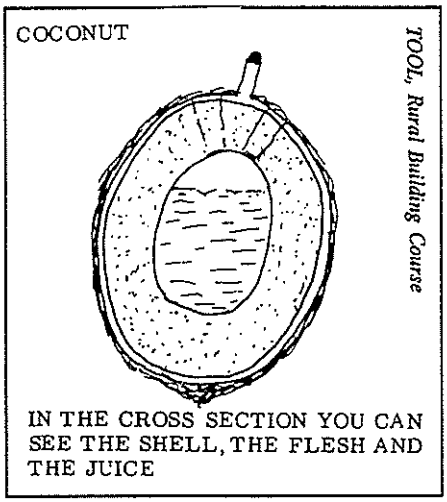
S. Sithole-Fundire, A. Zhou, A. Larsson, A. Schlyter. Gender Research on Urbanization, Planning, Housing and Everyday Life. 240 S., ISBN 0-7974-1495-9. 1995. Zimbabwe Women's Resource Centre & Network, Harare. Vertrieb in Europa (SEK 100,-/GP 10,-): Nordiska Afrikainstitutet, Box 1703, S-751-47 Uppsala.

Der Sammelband enthält Berichte zu zahlreichen, im Rahmen des GRUHEL-Programmes, Phase 1 (Gender Research on Urbanization, Planning, Housing and Everyday Life) entstandenen Forschungsarbeiten im südlichen Afrika. Die zunehmende Benachteiligung von Frauen in vielen Lebensbereichen wird wieder einmal empirisch nachgewiesen, und auf Urbanisierungs- und Modernisierungsprozesse zurückgeführt. Lichtblicke sind jedoch zu erkennen in der Praxis informeller Sparvereine und auch bei der gelegentlichen Zuverfügungstellung von Flächen für produktive bzw. gewerbliche Nutzung für Frauen in Wohnprojekten und Innenstädten. Durchaus erkennbare Handlungsansätze werden in den Aufsätzen leider nicht weiter ausgeführt. Stattdessen schließt das Buch mit der als Zitat wiedergegebenen Erklärung: *'We find that we [women] are almost equal to, or even better than, men. We no longer consider that the man is the head of the household'.* Mit der Festschreibung der prinzipiellen Gleichberechtigung waren wir schon einmal weiter.

Handbücher

Barbara Matiru, Anna Mwangi, Ruth Schlette. Teach your Best. A Handbook for University Teachers. 374 S., ISBN 3-88939-076-5. 1995. Iko Verlag, Postfach 900421, D-60444 Frankfurt.

Auch Unterrichten will gelernt sein. Dies gilt in Afrika wie in Deutschland – doch in Europa sind viele Hochschullehrer zu eingebildet, um sich in dieser Hinsicht helfen zu lassen. In Kenia, wo die Idee zu diesem Buch entstand, ist das offensichtlich nicht so. Mit Unterstützung der DSE und der GHK (Witzenhausen) entstand ein Leitfaden des besseren Unterrichtens für angehende und gestandene Hochschullehrer/innen. Die wichtigsten behandelten Themen sind: die Rolle des Universitätslehrers bzw. -lehrerin; Lehrbedarfsanalyse; Lerngewohnheiten,



Kursstrukturierung; Lehrmethodik; Unterrichtsmedien; Unterrichtsevaluierung; Forschung/Publikationen. Die vermittelten Hinweise sind fast alle auch für Unterricht in Europa hilfreich – ein willkommenes Einstiegsgeschenk für Jungprofs und andere auf dem Weg dahin.

Joachim Betz; Stephan Brüne. Jahrbuch Dritte Welt 1996. Daten, Übersichten, Analysen. 296 Seiten, ISBN 3-406-39217-2, 1995, DM 24,-. Verlag C.H. Beck, München.

Seit 1983 erscheint jährlich ein neues Jahrbuch in dieser Reihe. In der aktuellen Ausgabe finden sich 20 Beiträge, davon fünf überregionale Aufsätze, sechs zu Afrika, drei zu Südamerika, drei zu Asien, und drei zu Nahost. Ein großer Teil der Aufsätze ist überdurchschnittlich aufschlußreich: Informationen, die in den Berichten der Tageszeitungen zumeist fehlen. Beispiele wären der Tuaregkonflikt in Mali und Niger, Syrien nach dem Ende des Ost-West Konflikts; die Wahlen in Guinea, und die Entwicklungskrise in Sierra Leone. Dennoch, als 'Buch' im Gegensatz zu einer Zeitschrift befriedigt der Sammelband nicht; er erscheint wie eine hastig zusammengestellte Fließbandproduktion. Zunächst wäre anzumerken, daß auf dem Jahrbuch ehrlicherweise '1994' stehen sollte, denn bei dem Redaktionsschluß Mitte 1995 sind – auch im Jahresüberblick – nur die Ereignisse von 1994 ganzjährig erfaßt. Andere Unaufmerksamkeiten sind den Herausgebern unterlaufen: ein Bericht über die Wahlen in Guinea wird als 'überregionaler Beitrag' eingeordnet; Cuba wird in der Einführung als einziges Land Lateinamerikas ohne gewählte Regierung vorgestellt, obwohl gerade dort in dem Berichtszeitraum Wahlen ohne Beanstandung der höchst aufmerksamen internationalen Beobachter stattfanden. Die Illustrationen beschränken sich auf 4 Karten, von denen drei neutrale Pressedienst-Abzüge sind ohne Legende und ohne konkrete Hinweise auf die in den Beiträgen erwähnten Ortschaften oder Ereignisse. Störend ist auch, daß die einzelnen Artikel nur mit kleiner Zwischenüberschrift, meist nicht einmal auf einer neuen Seite, aufeinander folgen, und keine Kopfzeile beim Blättern einen Hinweis darauf gibt, um welchen Beitrag es sich auf der jeweiligen Seite handelt. Diesem Nachteil hätte vielleicht ein Index abgeholfen, das jedoch auch fehlt. Bei einem 24-DM Taschenbuch könnte man etwas mehr Sorgfalt erwarten.

Buko u.a. Aktions-Handbuch Dritte Welt. 8. überarbeitete Auflage. 342 Seiten, ISBN 3-926269-95-7, 1995, DM 24,80. Schmetterling Verlag, Rotebühlstraße 90, 70178 Stuttgart.

Für Dritte-Welt Initiativen stellt dieses Handbuch seit Jahren ein wichtiges Arbeitsmittel dar; die vielen Neuauflagen sind ein gutes Indiz für die generelle Nützlichkeit des Werkes. Es enthält Aufsätze zu Selbstverständnis und aktuellen Themen, über die Szene in den verschiedenen deutschsprachigen Ländern, bringt Beispiele für besonders geglückte Aktionen der Öffentlichkeitsarbeit, gibt Tips für Projekte und politische Arbeit. Hauptteil ist jedoch eine Auswahl-Empfehlung für entwicklungspolitische Medien und eine Adressliste von rund 3000 Kontaktadressen (meist Gruppen, aufgelistet nach Postleitzahlen und indiziert nach Themen). Wenn man davon absieht, daß trotz 'Überarbeitung' viele der Adressen hoffnungslos veraltet sind, ein nach wie vor interessantes und aktuelles Nachschlagewerk.

Ökologie

N.K. Bansal; G. Hauser, G. Minke. Passive Building Design. A Handbook of Natural Climatic Control. 340 S., ISBN 0-444-81745-X. 1994. Dfl. 295,-. Elsevier Science, Amsterdam.

Das Handbuch entstand aus einem von der Kernforschungsanstalt Jülich geförderten Forschungsprojekt, das sich in der ersten Phase auf Indien beschränkte, und später auf den internationalen Kontext ausgedehnt wurde. Das Ergebnis ist aber wesentlich reicher als die Norm üblicher Forschungsberichte. In diesem Werk sind in vorbildlicher Systematik alle bekannten Methoden passiver Heizung und Kühlung identifiziert, beschrieben und quantifiziert. Berechnungsformeln sind in üppiger Anzahl vorhanden, um auch Bauingenieure zufriedenzustellen; die Architekten werden mit anschaulichen Abbildungen gelockt. Auf den systematischen

Textteil folgen Datentabellen, darauf eine beachtliche Anzahl von gebauten Beispielen. Angesichts des weiten Spektrums der vorgestellten Lösungen wird vorwiegend auf Sekundärliteratur zurückgegriffen. Insgesamt ein ausgesprochen nützliches Nachschlagewerk. Der hohe Preis wird eine weite Verbreitung, die dem Werk zweifellos gebührt, leider verhindern.

Geoff Tansey; Tony Worsley. The Food System. 258 Seiten, ISBN1-85383-277-4. 1995. £ 16,-. Earthscan, London.

Das Buch wurde aus der Sicht der Lebensmitteltechniker konzipiert und verspricht einen radikalen Ansatz. Es präsentiert sich wie ein Almanach; tausende interessanter und wenig bekannter Tatsachen und Machenschaften sind hier zusammengefaßt, Grundlagen werden erklärt, Fallbeispiele in Boxen vorgestellt. Mit der Vielfalt geht leider die Übersichtlichkeit verloren – ein typischer Fall von Informations-Overkill. Jedenfalls für Durchschnitts-Leser und Leserinnen. Bleibt ein Nachschlagewerk, daß durch das Stichwortverzeichnis seine Nützlichkeit bewahrt. Mit guter redaktioneller Beratung hätte das Material allerdings wesentlich mehr hergegeben; doch Leser/innen, die genügend Geduld aufbringen, kommen auch so auf ihre Kosten.

Technologie

Tom Königs (Hrsg.). Minus 50% Wasser ist möglich! Einsparungspotentiale beim Wasserverbrauch in Dienstleistungszentren und Bürogebäuden. Fallstudien aus der Praxis. 112 Seiten, ISBN 3-89367-050-5; DM 29,-. Eberhard Blottner Verlag, 65219 Taunusstein.

Der Band enthält acht überarbeitete Vorträge eines 1993 in Frankfurt abgehaltenen Experten-Forums zur Wassereinsparung. Die Berichte beziehen sich auf konkrete Erfahrungen einzelner Anlagen und schließen Sparinstallationen, Rückgewinnung, und Regenwassernutzung ein. Ein beeindruckendes Beispiel, das Wassermanagement bei einer Sadterweiterungsplanung in Ryad / Saudi Arabien (von Speerplan) liegt außerhalb Europas und ist besonders relevant für den Entwicklungsländer-Kontext. Die Ergebnisse werden in Zahlen nachgewiesen, und eine Reihe von Maßnahmen werden auch in ihren technischen Details erklärt. Ein gutes Buch für die Ausführungsplanung.

Inge Lardinois, Arnold can de Klundert (eds). Plastic Waste. Options for Small scale Resource Recovery. 112 S.; ISBN 90-70857-34-0. 1995. Tool, Sarphatissraat 650, NL-1018 AV Amsterdam.

Kunststoffe gelten allgemein als besonders kritischer Bestandteil des Hausmülls, wenn es um die Möglichkeit der Recycling geht. Der Grund liegt hauptsächlich darin, daß verschiedene Kunststoffarten ähnliches Aussehen und ähnliche Eigenschaften haben, z.T. auch für die gleichen Materialien verwendet werden, aber getrennt aufbereitet werden müssen. Darüberhinaus verliert der Stoff nach jedem Aufbereitungs-Zyklus an Qualität, verrottet aber praktisch nicht. In Industrienationen wandert daher der größte Teil des Plastikmülls auf die Deponie oder die Müllverbrennungsanlage.

In den Entwicklungsländern ist Plastik meist ein Importprodukt, das teure Devisen kostet, was die Rentabilität für recycletem Kunststoff verbessert. Auch der Aufwand für das arbeitsintensive Sortieren von Altplastik ist bei niedrigem Lohnniveau vertretbar. Die schwache Kaufkraft der Bevölkerung garantiert auch Nachfrage für qualitativ minderwertige Ware aus wiederverwerteten Kunststoff. So ist leicht zu erklären, warum gerade in der Dritten Welt Plastikrecycling ein blühendes Gewerbe ist.

Das Buch vermittelt in kurzer, aber kompetenter Form Grundkenntnisse über das Material Plastik, über Möglichkeiten verschiedene Grundstoffe zu unterscheiden, über die vorherrschenden Betriebsformen in dem Wirtschaftszweig, über den technischen Prozeß des Recycling, die wirtschaftlichen Aspekte, gesundheitliche Risiken, und die Bedeutung der Fachausdrücke. Eine ausgezeichnete Publikation, die Neuland betritt. Zu kritisieren ist lediglich der Druck in Fußnoten-Größe (8 Punkt compressed).

R.A. Reed. Sustainable Sewerage. Guidelines for Community Systems. 97 S. ISBN 1-85339-305-3. 1995. £ 7,-. IT Publications, 103 Southampton Row, London WC1B 4HH, UK.

Ein Handbuch zur Planung von 'Low-Cost' Abwasser-Systemen, vornehmlich in informellen Siedlungen. Die Darstellungen konzentrieren sich auf das von UNCHS seit 1986 propagierte *Shallow Sewer System*, das inzwischen in Brasilien unter dem Namen *esgotos condominais* zur gängigen Praxis avancierte. Die Vorteile liegen hauptsächlich in der Kostenersparnis von bis zu 90% gegenüber konventionellen Lösungen auf Grund wesentlich geringerer Rohrquerschnitte, niedriger Verlegetiefen und Leitungsverlauf teilweise innerhalb der privaten Grundstücksgrenzen. Außer den technischen Details werden auch Fragen des Management und der Finanzierbarkeit angesprochen, so daß nur wenige Fragen offenbleiben. Lediglich die Option der dezentralen Abwasserklärung, die der logische nächste Schritt zu den beschriebenen Kleinanlagen wäre, bleibt in der Arbeit unerwähnt. Hier plädiert der Autor für konventionelle zentrale Kläranlagen mit dem Argument der *'Economies of Scale'*. Andere kompetente Autoren vertreten da eine andere Position – doch dieser Aspekt ist ja nicht das Thema dieses Reports und daher von geringer Relevanz.

Hans Rosenlund. Design for Desert. An Architect's Approach to Passive Climatization in Hot ans Arid Climates. 195 Seiten, ISBN 91-87866-17-X, 1995. Skr. 200. LCHS, Box 118, S-22100 Lund.

Eine über viele Jahre gewachsene Dissertation, zu der Vorarbeiten bereits früher publiziert und TRIALOG besprochen wurden (Heft 23, S.72, Heft 41, S. 50). Diese Arbeit folgt dem konventionellen Schema von Dissertationen: Definitionen, Forschungshypothese, geographischer Kontext. Es folgt der Stand der Wissenschaft, Forschungsmethodik, deren Ergebnisse, Empfehlungen. Kernstück der Arbeit sind Messungen an bestehenden Gebäuden in Algerien und Tunesien, eine daraus entwickelte Computersimulation, und erneut Testergebnisse aus Versuchsbauten, die mit den Erkenntnissen aus der Computersimulation entworfen wurden. Während das Werk als Ganzes eher relevant für wissenschaftliche Bibliotheken ist, interessieren den/die Normalverbraucher/in die konkreten Beispiele von Dörfern am Rand der Sahara, sowie die beiden vom Autor entwickelten Versuchsbauten: ein bescheidenes Wohnhaus in Ghardaia, Algerien; ein Jugendzentrum in Tamerza, Tunesien; und eine Schule sowie ein Kindergarten in Tozeur, ebenfalls in Tunesien.

H. Bachmann. Erdbebensicherung von Bauwerken. 308 Seiten, ISBN 3-7643-5190-X, 1995, DM 78,-. Birkhäuser Verlag, Basel.

Das Werk richtet sich in der Hauptsache an Bauingenieure. Die Abschnitte des Buches behandeln die seismologischen Grundlagen, Bemessungswerte, Entwurfsrichtlinien, Berechnungsverfahren, Bemessung. Dem Brückenbau ist ein eigenes Kapitel gewidmet. Die Beschreibung der 'Entwurfsgrundsätze' füllt gerade 5 Seiten und beschränkt sich auf wenige Allgemeinplätze. Die Philosophie des Ansatzes ist eine Verstärkung der Steifigkeit des Gebäudes durch mehr Stahl und Beton, was in den Ländern, wo die meisten Erdbeben vorkommen, ökonomisch eine unrealistische Lösung darstellt. 'Intelligente Lösungen' wie flexible Konstruktionen (Holzbau), Reduzierung der Geschoßzahl, Aufteilung der Baumasse auf mehrere einzelne Gebäude, finden keine Erwähnung. Damit ist die Relevanz der Arbeit für Architekten, insbesondere in Entwicklungsländern, eher gering. Reine Statiker dagegen finden reiche Informationen zur Berechnung und Bemessung von Gebäuden.

TOOL, Rural Building Course. IT Publications, 103 Southampton Row, London WC1B 4HH, UK. jeweils £ 10,- bis 15,-.

- **Volume 1: Reference, 245 S., 245 S., 1995**
- **Volume 2: Basic Knowledge, 184 S., 1995.**
- **Volume 3: Construction, 300 S., 1995**
- **Volume 4: Drawing Book, 126 S., 1995**

Das Set der vier Bücher wurde zusammengestellt als Lehrbuch (mehr für die Lehrer als für die Schüler) eines Trainingkurses für junge Bauhandwerker in Ghana. Die wichtigsten Grundkenntnisse des Handwerks werden in Wort und Bild dargestellt, was in einem Metier, das sich fast ausschließlich aus Autodidakten und ungelernten Handwerkern rekrutiert, sicher eine große Hilfe ist. Im ersten Band werden Baugeräte und deren Pflege, Baustoffe und Baumaterialien behandelt, im zweiten und dritten Band Baukonstruktionslehre, und im vierten Band schließlich Darstellungstechniken. Die Serie entspricht einem offenkundigen Bedürfnis nicht nur in Ghana, erfordert aber eine Überarbeitung vor dem Einsatz in anderen geographischen und kulturellen Zusammenhängen.

Veranstaltungen
Forthcoming Events

April 11 - 14th, 1996, University of Exeter, UK
"A changing Europe in a Changing World: Urban and Regional Issues", organized by the Journal for European Urban and Regional Studies. Further Information: Kathy Wood, EURS, Department of Geography, University of Durham, South Road, Durham DH1 3LE, UK.

May 16 - 18th, 1996 in Oberhausen, Germany
"Zwischen Rio und Istanbul liegt Deutschland – Nachhaltige Stadtentwicklung in der Siedlungspolitik". Organized by: Vereinigung für Stadt, Regional- und Landesplanung (SRL) e.V. Contact: SRL e.V., Köpenicker Str. 48/49 D-10179 Berlin. ☎ (49-30) 3086 2060, fax: (49-30) 3086 2062.

May 1996 in Ballerup, Denmark
Danish International Housing Exhibition "Live in Town". Organized by: Municipality of Ballerup, Ministry of Housing, Danish Building Research Institute (SBI) et al. Contact: Erik B. Jantzen, SBI, P. O. Boks 119, DK-2970 Hörsholm, Denmark.

May 27 - June 1st, 1996 in Ankara /Istanbul, Turkey
XXIV IAHS World Housing Congress: "How to House a Nation: A Challenge for XXIst Century". Before United Nations HABITAT II meeting in Istanbul, this congress will dwell on scientific issues related to housing problems. Organized by: Middle East Technical University (METU), Ankara, International Association for Housing Science (IAHS) and other institutions, in cooperation with World Bank and UN, Habitat. Conference language is english. Contact: XXIV IAHS World Housing Congress, Dr. Talat Birgönül, Congress Secretary, Civil Engeneering Department, Middle East Technical University, 06531 Ankara, Turkey. ☎ (90-312) 210 1000 ext. 2427, fax: (90-312) 210 1262, e-mail: birgonul@rorqual.cc.metu.edu.tr

June 03 - 14th, 1996 in Istanbul, Turkey
Habitat II, UNCHS World Conference, 2nd UN Conference on Human Settlements.. Contact: The Habitat II Secretariat, UNCHS (Habitat), P.O. Box 300 30 Nairobi, Kenya. ☎ (254-2) 623 033 / 621 234, fax: (254-2) 623 080 / 624 266, e-mail: habitat2@unep.no

June 26 - 29th, 1996 in Salamanca, Spain
I Congreso Europeo de Latinoamericanistas: "América Latina: Realidades y Perspectivas". Contact: Manuel Alcántara Sáez, Sara Martín o Maria Pia Escario, Instituto de Estudios de Iberoamérica y Portugal, C/ San Pablo, 26 - Palacio de Abrantes, E-37001 Salamanca, España. ☎ (3423) 29 46 36, fax (3423) 29 46 37, e-mail: iberoame@gugu.usal.es

July 1 - 4th, 1996 in Tampere, Finland
"International Confrence on Crossroads in Cultural Studies". Contact: Marko Valo, Dept. Sociology & Social Psychology, Univ. Tampere, POB 607, 33101 Tampere, Finnland. ☎ (358) 31-2156 949, fax (358) 31-2156 080, e-mail: iscsmail@uta.fi

July 2 - 5th, 1996 in Brisbane, Australia
"New urban forms, new housing forms - deverse paths of change in the Asia Pacific region." A joint conference of RC 21 (Regional and Urban Development) and RC 43 (Housing and Built Environment) of the International Sociological Association. Contact: Patrick Mullins, Dept. of Anthropology & Sociology, The University of Queensland, Brisbane, Qld. 4072, Australia. ☎ (°07) 3365 3018, fax (°07) 3365 1544, e-mail: p.mullins@mailbox.uq.oz.au

July 29 - August 2nd, 1996 in Vancouver, Canada
Pan Pacific Hazards '96 Conference: Earthquakes, Volcanoes and Tsunamis in the Pacific "Ring of Fire" countries. Contact: Program Committee, Pan Pacific Hazards '96 Conference, The University of British Columbia, Disaster Preparedness Resource Centre, 2206 East Mall, 4th Floor, Vancouver, BC V6T 1Z3, e-mail: dprc@unixg.ubc.ca

July 30 - August 3rd, 1996 in Stockholm, Sweden
14th Conference of the International Association for People -Environmental Studies (IAPS), "Evolving Environmental Ideals: Changing Ways of Life, Values and Design Practices.". Contact: Madi Gray, The Royal Institute of Technology, Dept. of Architecture & Townplanning, IAPS 14 Secretariat, S-1144 Stockholm, Sweden. ☎ / fax: (°46) 8 643 1173, e-mail: madigray@arch.kth.se

August 26 - 30th, 1996 in Bonn, Germany
9th Conference of the International Soil Conservation Organization "Towards Sustainable Land Use – Furthering Cooperation between People and Institutions". Contact: A. Klein, Umweltbundesamt, FG II 3.2, Postfach 33 00 22, D-14191 Berlin. ☎ (°49-30) 2314 5746, fax: (°49-30) 229 3096 or 231 5638, e-mail: 100434.1121@compuserve. com

August 26 - 31th, 1996 in Helsingør, Denmark
ENHR / SBI Housing Research Conference - Housing and European Integration. Organized by the Danish Building Research Institute (SBI) and European Network of Housing Research (ENHR). Contact: Hans Kristensen, Head of Housing and Urban Planning Division or Hedvig Vestergaard, Senior Researcher, or Eva Hultman, Secretary, SBI, Postbox 119, DK-2970 Hørsholm, Denmark. ☎ (°45) 42 86 55 33, ext. 337, fax: (°45) 42 86 55 94.

October 7 - 11th, 1996 in Stuttgart, Germany
"Conceptional Design of Structures". Organized by: International Association for Shell and Spatial Structures (IASS). Contact: Knut Gabriel / Ulrich Hangleiter, IASS-Symposium '96, Inst. für Tragwerksentwurf und -konstruktion, Univ. Stuttgart, Pfaffenwaldring 7, D-70569 Stuttgart, Germany. ☎ (°49) 711 685 6227 / 6615, fax (°49) 711 685 6968.

October 14 - 17th, 1996 in Sendai City, Japan
International Federation for Housing and Planning (IFHP) 1996 World Congress. Contact: IFHP Congress Department, 43 Wassenaarseweg, NL-2596 CG The Hague, The Netherlands. ☎ (°31) 70 328 1504, fax (°31) 70 328 2085.

November 5 - 8th, 1996 in Bangkok, Thailand
"International Conference on Urban Engineering in Asian Cities in the 21th Century". Contact: Conference Secratariat, School of Civic Engineering, Asian Institute of Technology, PO Box 2754, Bangkok 10501, Thailand. fax: (662) 524 6059, e-mail: anilcw@rccsun.ait.ac.th

November 6 - 15th, 1996 in La Habana, Cuba
Curso Internacional de Ordenamiento Territorial, Regional y Urbano. Contact: Arq. Eduardo López Garcia, Dr. C.T., Coordinator General VI Curso, Instituto de Planificación Física, Lamparilla # 65 e/San Ignacio y Mercaderes, Habana Vieja, Ciudad de la Habana, Cuba. ☎ (°53-7) 629 230 / 629 345 / 629 101, fax: (°53-7) 335 581 or 338 755

June 4 - 7th, 1997 in Alexandria, Virginia, USA
RC 43 International Conference on Housing and the Built Environment. Contact: Patricia K. Edwards, Dean, College of Architecture & Urban Studies, Virginia Tech, Blacksburg, VA 24061 USA. ☎ (°1) 540 231 6416, fax: (°1) 540 231 9938, e-mail: edwardsp@vt.edu / or: C. Theodore Koebel, Centre for Housing Research, Virginia Tech, Blacksburg, VA 24061 USA. ☎ (°1) 540 231 3993, fax: (°1) 540 231 7157, e-mail: tkoebel@vt.edu

World Habitat Awards: Call for Entries 1996

1996 is the twelfth year of the annual World Habitat Award competition, which has been highly successfull in attracting outstanding human settlement projects. The winning projects have received world-wide publicity, with a view to encouraging their replication in many other countries. The Awards are presented each year on World Habitat Day. The two Award winners each year receive £10,000 and a silver trophy.

The Building and Social Housing Foundation is now calling for entries for 1996. Projects are sought, in both developed and developing countries, which offer sustainable futures to residents and which provide practical and imaginative solutions to current housing problems. Preliminary submissions should reach the Foundation **31 July 1996**. Contact. Ms. Diane Diacon, Building and Social Houising Foundation, Memorial Square, Coalville, Leicestershire LE67 3TU, ☎: (°44 530) 510 444, Fax: (°44 530) 510 332.

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