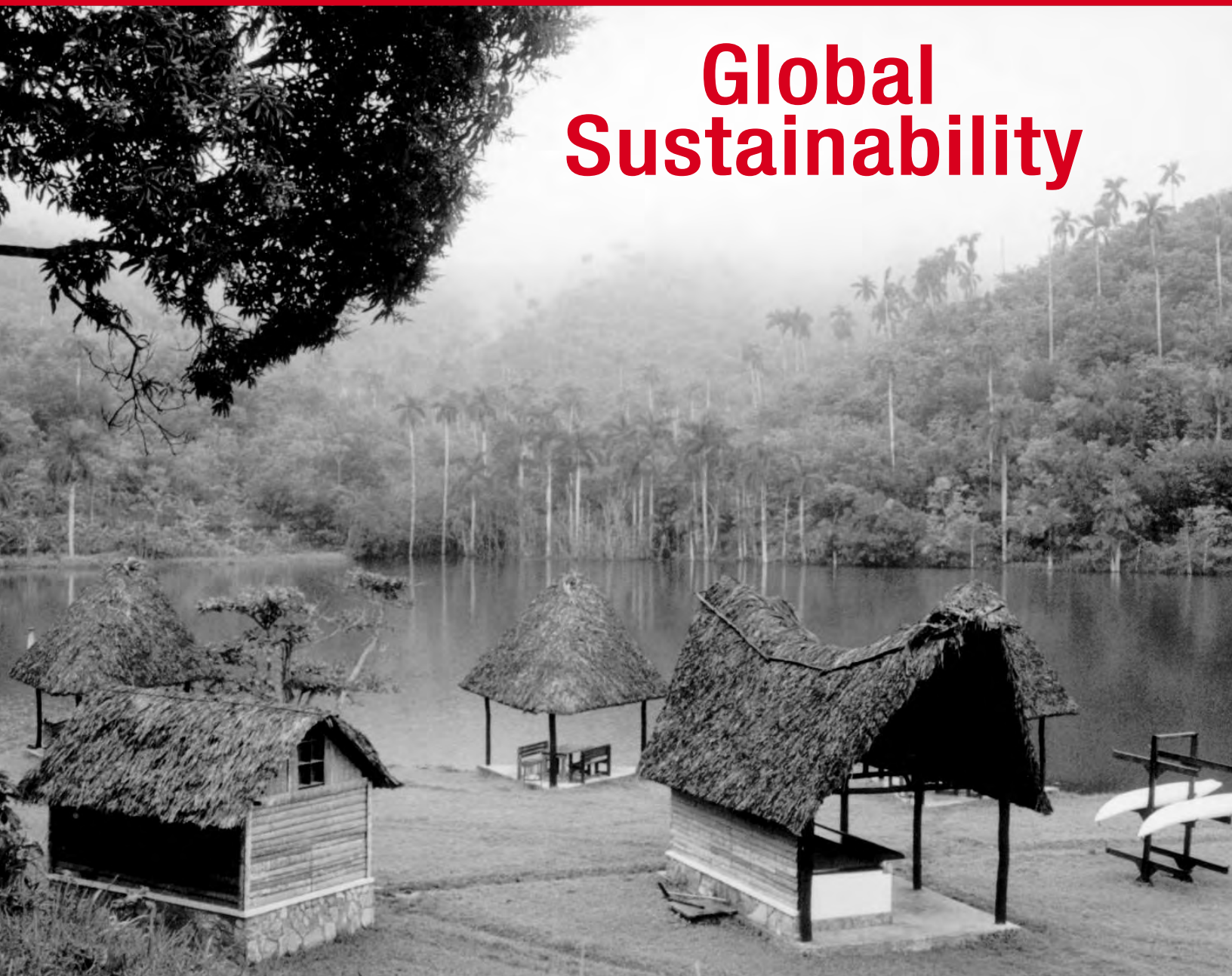
Issue 11
Fall/Winter 2005

sustain

a journal of environmental and sustainability issues

The
Kentucky Institute
for the
Environment
and Sustainable
Development

Global Sustainability



The Kentucky Institute for the Environment and Sustainable Development (KIESD) was created in July 1992 within the Office of the Vice President for Research, University of Louisville. The Institute provides a forum to conduct interdisciplinary research, applied scholarly analysis, pubic service and educational outreach on environmental and sustainable development issues at the local, state, national and international levels.

KIESD is comprised of eight thematic program centers: Environmental Education, Watershed Research, Sustainable Urban Neighborhoods, Pollution Prevention, Environmental and Occupational Health Sciences, Environmental Policy and Management, and Environmental Engineering.

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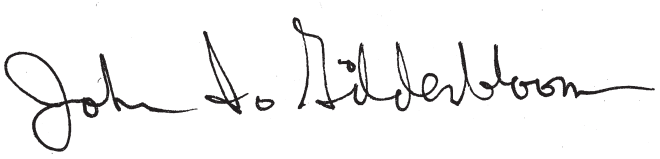
Global Sustainability

Urbanization, the migration of people to cities, is a worldwide phenomenon. As human populations changed from roving bands of hunter-gatherers and settled in permanent locations as agrarian/farming settlements some 10,000 years ago, a new way of life emerged. In 1800, just 3 percent of the world's population lived in urban areas, 200 years later it had risen to 50 percent. By 2030, it is expected that 60 percent of our population will be urban. Globally, the growth of cities has skyrocketed. As the rural way of life began to erode, cities emerged, luring rural dwellers to their centers with the promise of work, security, access to services, the excitement of "city lights", and an escape from the drudgery and boredom of rural life.

That trend has continued at a rapidly increasing pace with cities like Tokyo nearing 30 million and Mexico City closing in on 20 million and many other cities (Mumbai, India; Sal Paulo, Brazil; and New York City) are not far behind (see WorldAtlas.com). Because of the crowded conditions, industries, congestion, and traffic, many cities have become huge pollution machines, which increasingly threaten the health, life chances, and well being of people. As the environments of cities fall into disrepair they become, ironically, laboratories for bold, innovative, and practical sustainability.

Each author presents a slightly different perspective on both the positive and negative impacts of urbanization, and as each author addresses the issue of sustainability, it is clear that there is good cause to be optimistic that the quality of life for urban dwellers can be improved even in the midst of dire and seemingly hopeless circumstances. Does the environmental future of the planet depend on the possibility of sustainable cities? If this is a global test, and we fail it, what will be the future of mankind on this planet? The fact that the authors in this issue of Sustain address these and other issues associated with global sustainability is some reason for hope.



Sustain Magazine was born nearly five years ago to celebrate successful sustainable lifestyles as well as learning from the mistakes of the past. The Center for Sustainable Urban Neighborhoods (SUN: www.louisville.edu/org/sun) at the University of Louisville is proud to have taken the lead in producing this special issue of *Sustain*. The papers in this issue were presented at international conferences whick took place in Havana, Cuba (December 2003) and in Hawaii (June 2004). SUN along with KIESD co-sponsored these conferences.

The articles chosen for this issue of *Sustain* underwent a round of peer reviews. Academics at other Universities served as reviewers along with authors from the University of Louisville. We want to thank everyone who was involved in this review process. We invite interested parties to join us for our next International Conference in Hawaii June 13-16: www.hicsocial.org.

Recognising and Measuring Chronic Urban Poverty in South Africa[1]

Owen Crankshaw and Susan Parnell

(Respectively based in the departments of Sociology and Environmental and Geographical Sciences, University of Cape Town, South Africa)

Chronic poverty in South Africa, like elsewhere in Africa, is overwhelmingly understood as a rural phenomonon. This paper seeks to counter this belief and provides a broad overview of the current issues and debates around the urbanisation of poverty. The paper sets out a methodology for profiling poverty in South African cities. The objective of generating a baseline poverty profile is to provide an evolving framework for the ongoing monitoring of poverty in cities. In particular the methodology of the City Development Index (CDI) is explored as a comparative, quanitfiable measure of urban poverty that provides an appropriate and flexible tool for policy interventions.

Recognising Urban Poverty

If there is a typical 'face of poverty' in South Africa then this picture is no longer only a rural women engaged in subsistence agricultural production. It is an HIV positive child living in an environmentally degraded informal settlement in a rapidly growing city - without services and subjected to organised and household violence and vulnerable to global economic and political regime changes.

Despite the fact that the apartheid government removed all African people who were unemployed from urban areas, there is no South African City that is free of poverty. Since the democratic elections of 1994, urban regeneration and integration has been a key national objective (Box 1). However, every formal poverty reduction programme run by government has an overtly rural bias, and there is a very widely held conviction that the problem of chronic poverty is located in rural areas.

Box 1: Key national and international urban poverty reduction policies and objectives

National policy imperatives and targets for reducing urban poverty

- Reconstruction and Development Programme[2]
- The Urban Development Strategy[3]
- The Urban Development Framework[4]
- Developmental Local Government[5]
- Urban Renewal Programme[6]

International policy imperatives and development targets on urban poverty

- Millennium targets for 2015[7]
- Habitat Agenda[8]
- New Partnership of Africa's Development (NEPAD)[9]
- Cities Alliance without slums[10]
- World Summit on Sustainable Development, Johannesburg Plan of Action[11]

Largely arising out of the work of the recently formed South African Cities Network (SACN), there is a growing recognition that meeting national and international targets for poverty reduction requires an urban as well as a rural focus. Because of the South African history of migrant labour, poor peoples' lives often straddle rural and urban boundaries. It is thus a case of needing both an urban and a rural poverty reduction strategy, rather that seeing the problems of poverty in rural versus urban poverty terms, as is too often the case.

In South Africa, the categories 'African' or 'rural' are often assumed to be proxy indicators of poverty because these groups show higher average levels of poverty than the categories 'white' or 'urban' (Tables 1 and 2). While these

Table 1: Urban/non urban unemployment by race[12]

	African *	Coloured**	Indian***	White****	Total
Strict definition					
Urban rate	28.9%	17.3%	15.3%	4.8%	21.7%
Non-urban rate	29.6%	7.3%	22.7%	3.7%	27.0%
Expanded definition					
Urban rate	40.9%	26%	19.9%	6.9%	31.7%
Non-urban rate	48.1%	13.7%	29.6%	5.8%	44.8%

* African: African descent
** Coloured: Mixed European, African and East Asian descent
*** Indian: Indian descent
**** White: European descent

Table 2: Urban/rural distribution of households without electricity

Number of urban houses without electricity	Number of rural houses without electricity	Province
69,742	548,435	Eastern Cape
21,415	14, 475	Northern Cape
67,490	70,029	Free State
174,137	563,112	KwaZula-Natal
5,699	193,788	North West
472,154	34,091	Gauteng
56,957	92,518	Mpumalanga

patterns are generally true, and can be explained with reference to the apartheid legacy, they mask important variations within and between the categories.

The problem with the comparison between rural and urban places is that, especially in urban areas, we fail to acknowledge the extent of poverty. While it is true that cities are centres of wealth, they are also the focus of intense poverty. We also know that there are high concentrations of poverty within particular cities, making poor urban areas (normally ex townships or informal areas) the highest concentrations of poverty in the country. Moreover, the generally accepted notion that women and children are more vulnerable to poverty holds equally well for urban areas. The post apartheid demographic reality counters sterotypes that have depicted South African cities as predominantly white, adult and male places: in fact African women and children make up the bulk of the total urban population (Figures 1 and 2). The legacy of apartheid means that African, coloured and Indian people, who form the majority of the urban population, bear the brunt of poverty. However there is increasing inequality within the old apartheid categories of race and a more nuanced understanding of the profile of the urban poor is required.

Figure 1: Total urban population by race, 1996.

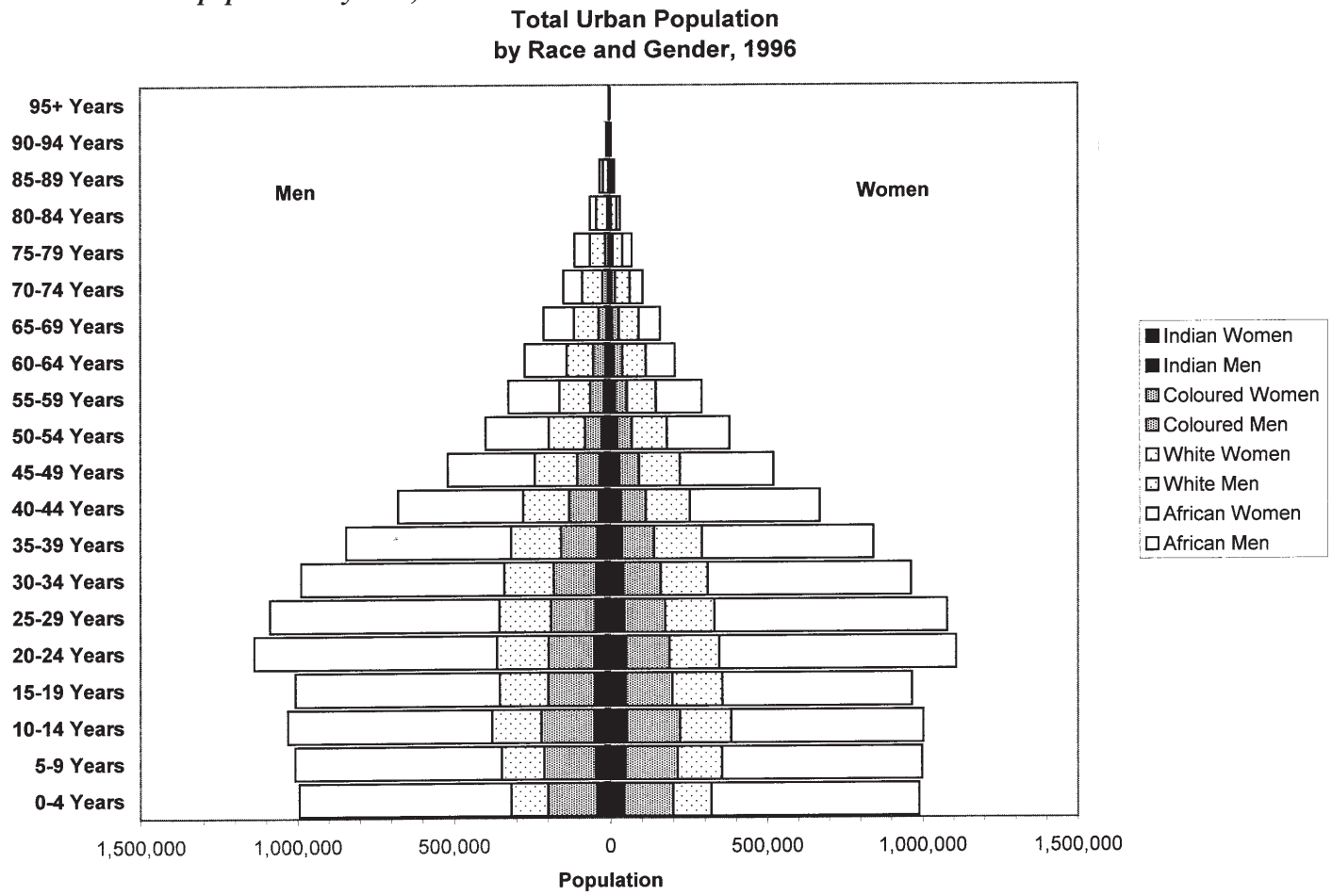
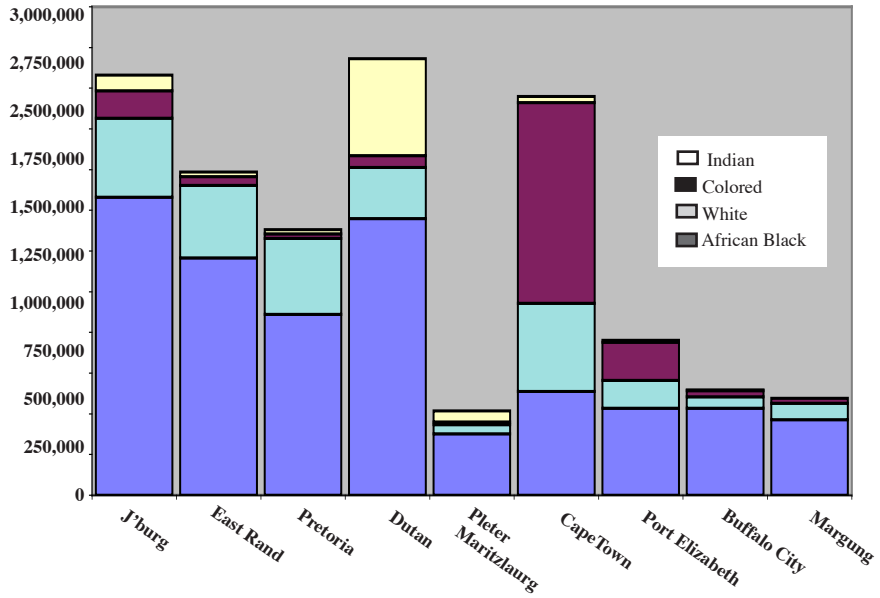


Figure 2: Population of the major cities by race, 1996.



One reason why the position of the urban poor in South Africa has been ignored is because of the way that the figures on the distribution of poverty are presented. There are different ways of measuring poverty and not all reveal the same patterns. Some of the most standard measures include income poverty in the form of poverty gaps[13] or infrastructure poverty, for example using informal housing as an indicator of poverty and need.[14] Using informal housing as an indicator of poverty accentuates the urban problem while the use of a single income poverty line tends to underestimate the extent of urban poverty, because of the higher income demands of living in town (compare Figures 3 and 4).

Backyard shack in Orlando, Soweto (Johannesburg).
Photograph by Dominic Wooldridge.

In line with the latest development practice, the definition of urban poverty adopted in this paper rejects narrow income based measures and adopts a wider definition of poverty that is located within a sustainable development approach.

Poverty is more than a lack of income. Poverty exists when an individual or a household's access to income, jobs and/or infrastructure is inadequate or sufficiently unequal to prohibit full access to opportunities in society. The condition of poverty is caused by a combination of social, economic, spatial, environmental and political factors.[15]

This wide definition of poverty seeks to embrace the diverse causes, experiences and manifestations of poverty that are outlined in the growing international literature on urban poverty (Box 2) while being relevant to South African specificities, including the legacy of apartheid that underscores the persistence of the chronically poor (Box 3). Recognising the multiple dimensions of poverty also directs attention to the range of actors who need to be involved in poverty relief and poverty reduction.

Box 2: International debates on the definition and measurement of urban poverty

APPROACH TO POVERTY	TYPE OF INDICATOR
INCOME PERSPECTIVE: This is the argument that categorises people as poor if their income falls below a defined income measure.	GGP, welfare payments, wage levels and poverty datum lines are income indicators.
BASIC NEEDS: This is one of the most influential international perspectives on poverty, especially in the context of the South or 'third world' where millions of people live without adequate food, shelter or sanitation. Basic needs can include 'hard' infrastructure such as storm water or 'social' infrastructure such as schools or clinics.	There are a number of well known poverty indicators that come out of a basic needs perspective, for example: access to potable water, literacy, life expectancy and nutrition levels.
SOCIAL EXCLUSION: Social exclusion refers to the fact that despite welfare and general wealth, there remains a group who are excluded from the mainstream benefits of the society and who are prevented in some way from gaining from the general prosperity.	Indicators of social exclusion emphasise political, social and economic components of poverty and inequality and are thus either multi-part or composite indicators. These indicators are often qualitative measuring, for example, racism or sexism.
SUSTAINABLE LIVELIHOODS: This approach stresses the involvement of individuals and communities in defining and solving their own poverty. The assumption is that everyone is not poor or vulnerable in the same way and that identifying local variations in poverty or deprivation are crucial to effective development strategies.	Community generated indicators focus on vulnerability or the inability to cope with hardship rather than poverty, so crucial issues that emerge may not be the lack of an income or even jobs but rather factors such as disability, the breakdown of the family or social problems like alcoholism.
LOCALITY: Space or geography is seen by some to be an independent variable in the poverty equation.	Indicators used by poverty analysis interested in locality include segregation indices, transport indicators and other mapping tools. The use of GIS facilitates a locational analysis of most other indicators.
ENVIRONMENTAL JUSTICE Equitable access to a healthy, pollution free environment and to the environmental resources required to support a healthy life without compromising the opportunities of future generations.	Indicators typically found in the State of Environment reports including air pollution, water quality and environmental health indicators.
HUMAN DEVELOPMENT: The emphasis here is on a holistic understanding of poverty where anti-poverty action enlarges peoples' life choices. Specifically this refers to enabling individuals to lead a long and healthy life, in which they are educated and have access to a decent standard of living. Included in this notion of poverty alleviation is ensuring that human rights are upheld and that political and social freedoms are secure.	Indicators are varied and complex indicators that reflect the diversity of the poverty condition. The Human Development Index and the Gender Development Index are well known examples. A more recent measure designed specifically for cities is the City Development Index.

Box 3: Apartheid and urban poverty[16]

Racist forced removals

- ➥ Removals robbed black people of their property or tenancies.
- ➥ Victims of removal did not get proper compensation.
- ➥ Removals destroyed urban economic niches.
- ➥ Removals increased costs because new housing was far from town.
- ➥ Removals disrupted established community structures.

Segregationist and apartheid housing provision

- ➥ The poor quality of the stock available to black, men women and children negatively affected their urban productivity and performance.
- ➥ The value of houses transferred from rental to ownership was less for blacks than for whites.
- ➥ There were missed opportunities for black investment in urban property.
- ➥ Women were especially badly affected by policies of state controlled housing.

Restrictions on free trading rights for all, and racist employment codes

- ➥ Black urban residents earned very low wages in unskilled jobs and therefore did not have enough money to meet basic needs.
- ➥ Even once job reservation was lifted, Africans struggled to compete because of poor educational levels associated with inferior segregated education.
- ➥ Black people struggled to create independent economic opportunities for themselves under apartheid because of restrictions on trading and retail activity in the townships.

The high cost of black household expenditure on basic goods and services

- ➥ The irrationality of the segregation driven location of the residential areas of the poor has increased costs such as transportation.
- ➥ Because of the system of financing locations, there is a legacy of the unfair cross subsidisation of rates to rich white neighbourhoods instead of poor African residential areas.
- ➥ Residents of informal settlements pay the highest per item costs on basic commodities such as water and fuel.

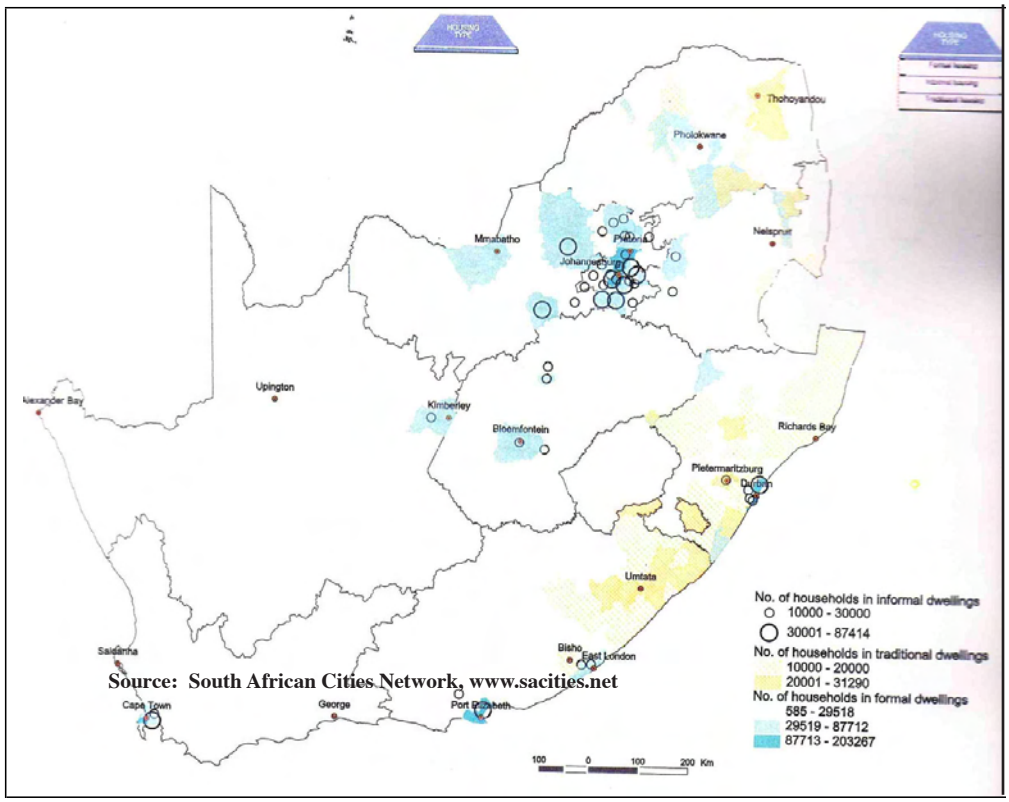
Distorting patterns of urbanisation and urban growth

- ➥ Because of influx control settlements have grown in places where there are no jobs or infrastructure.
- ➥ Opportunities for wealth creation are much better in metropolitan areas than they are in old homeland areas where many Africans were forced to live.
- ➥ Traditional land tenure makes it difficult to transfer property assets from settlements within the old homelands.
- ➥ The position of migrants who move between town and countryside is much less sustainable than those with an established urban or rural base.

Payment for the anti-apartheid struggle

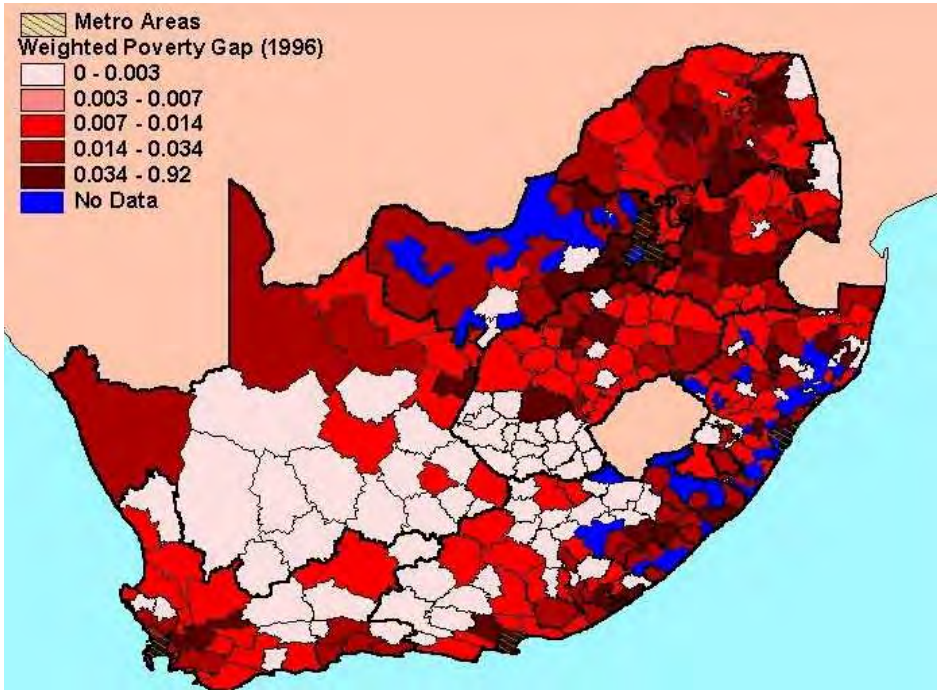
- ➥ Many students who stayed away from school now have no formal education.
- ➥ Workers who participated in strikes and boycotts and had their wages cut .
- ➥ Residents who, if only for the sake of fear, shifted from the violence torn trains and onto the more expensive taxis.
- ➥ Families had to pay fees or dues to the shacklords, warlords, civic, and other political structures that effectively governed the townships in the 1980s.

Figure 3: Poverty measured by the shortage of adequate housing



Source: South African Cities Network, www.sacities.net

Figure 4: The poverty gap



Source: South African Cities Network, www.sacities.net

The post apartheid tendency to ignore urban poverty reflects a general lack of awareness of the causes and expansion of poverty in South African cities. The steady increase in the urban population can be seen in Table 3 and Figures 5 and 6.[17] Note that while there has been a steady increase in the number of people living in cities in South Africa over the past century, the rate of increase has not been uniform across race, gender or location. Most particularly the growth in the size of the poor urban population is associated with the Africanisation and feminisation of cities. Unsurprisingly the poorest urban dwellers are commonly among those who have most recently moved to town.[18]

Table 3 Annual Population Growth Rate, 1890-1996 (Percentage) Metropolitan Areas and Larger Cities[19]

	Greater Johannesburg	Greater Cape Town	Greater Durban	Port Elizabeth	East London & Mdantsane	Bloemfontein, Botshabelo & & Thaba Nchu	Total Metropolitan Areas & Cities
1891-1911	17.6	3.4	8.7	2.5	5.2	3.0	8.0
1911-1921	1.3	2.2	0.1	2.2	1.7	1.6	1.4
1921-1936	4.7	3.1	7.1	5.6	2.5	3.2	4.5
1936-1946	3.8	3.3	3.7	3.5	2.5	1.3	3.6
1946-1951	4.0	4.2	5.6	5.3	3.1	10.1	4.4
1951-1960	3.1	3.4	3.8	4.1	2.8	3.4	3.3
1960-1970	3.0	3.2	4.3	3.1	5.8	2.3	3.3
1970-1980	2.7	2.9	2.6	3.0	3.0	1.6	2.7
1980-1991	2.3	2.8	2.4	2.4	-3.3	6.9	2.4
1991-1996	2.8	3.6	3.2	2.7	19.0	3.8	3.5

Source: Calculated from Population Censuses

Figure 5: African urban population by gender, 1911-1996.

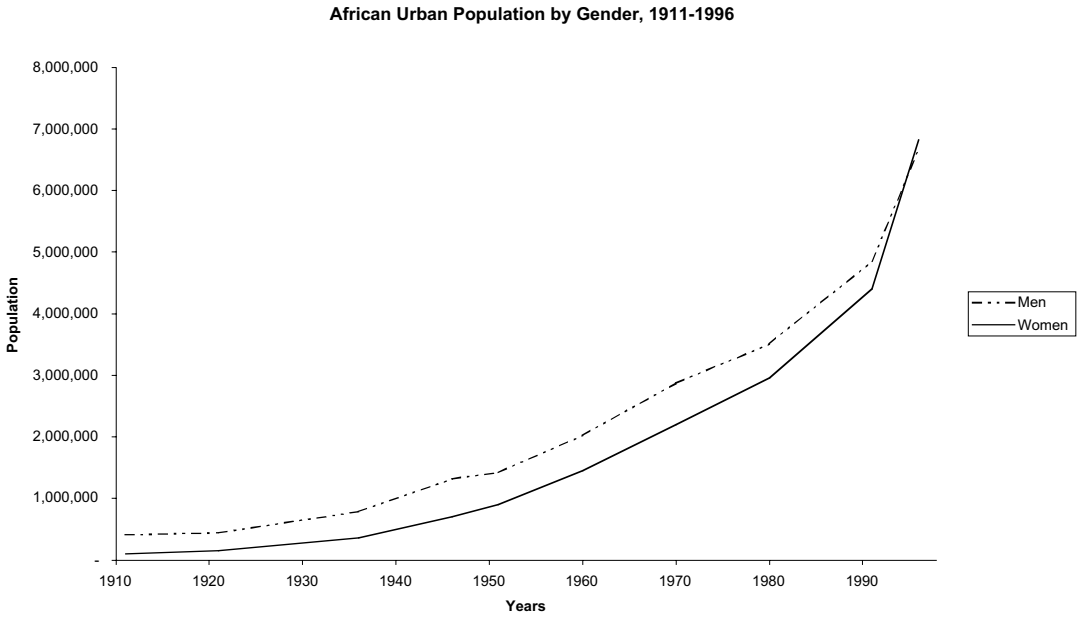
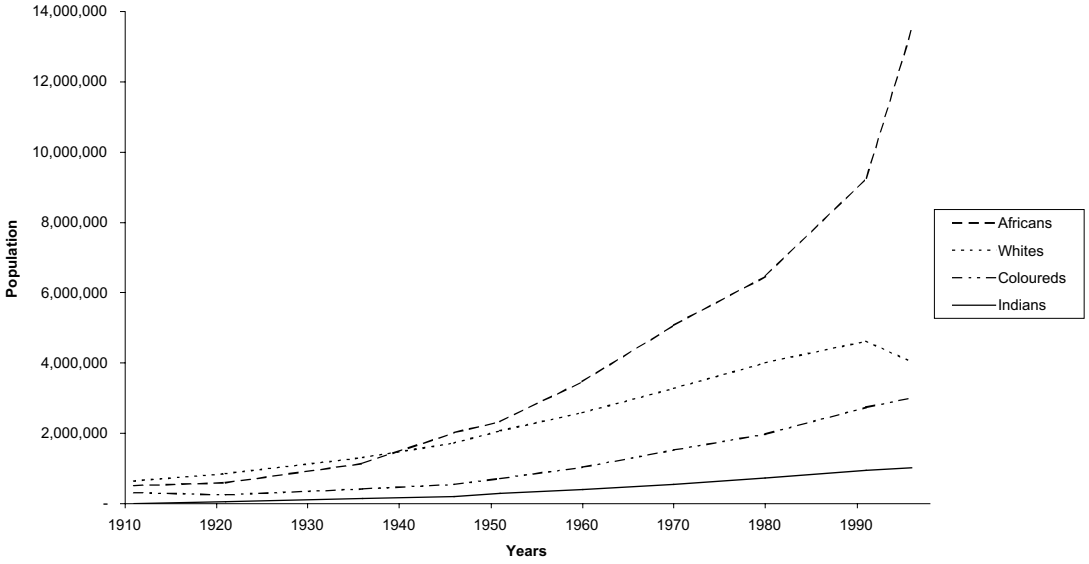


Figure 6: Urban population by race, 1911-1996

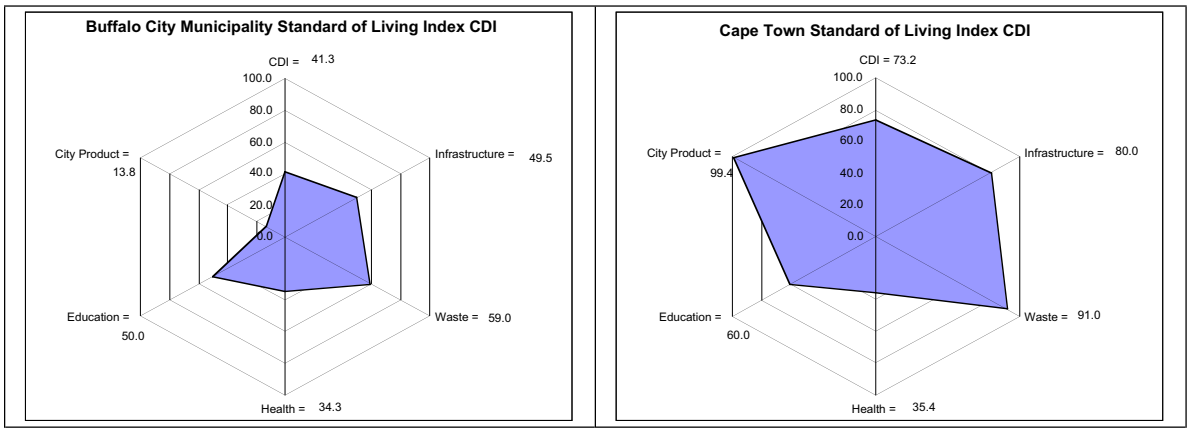


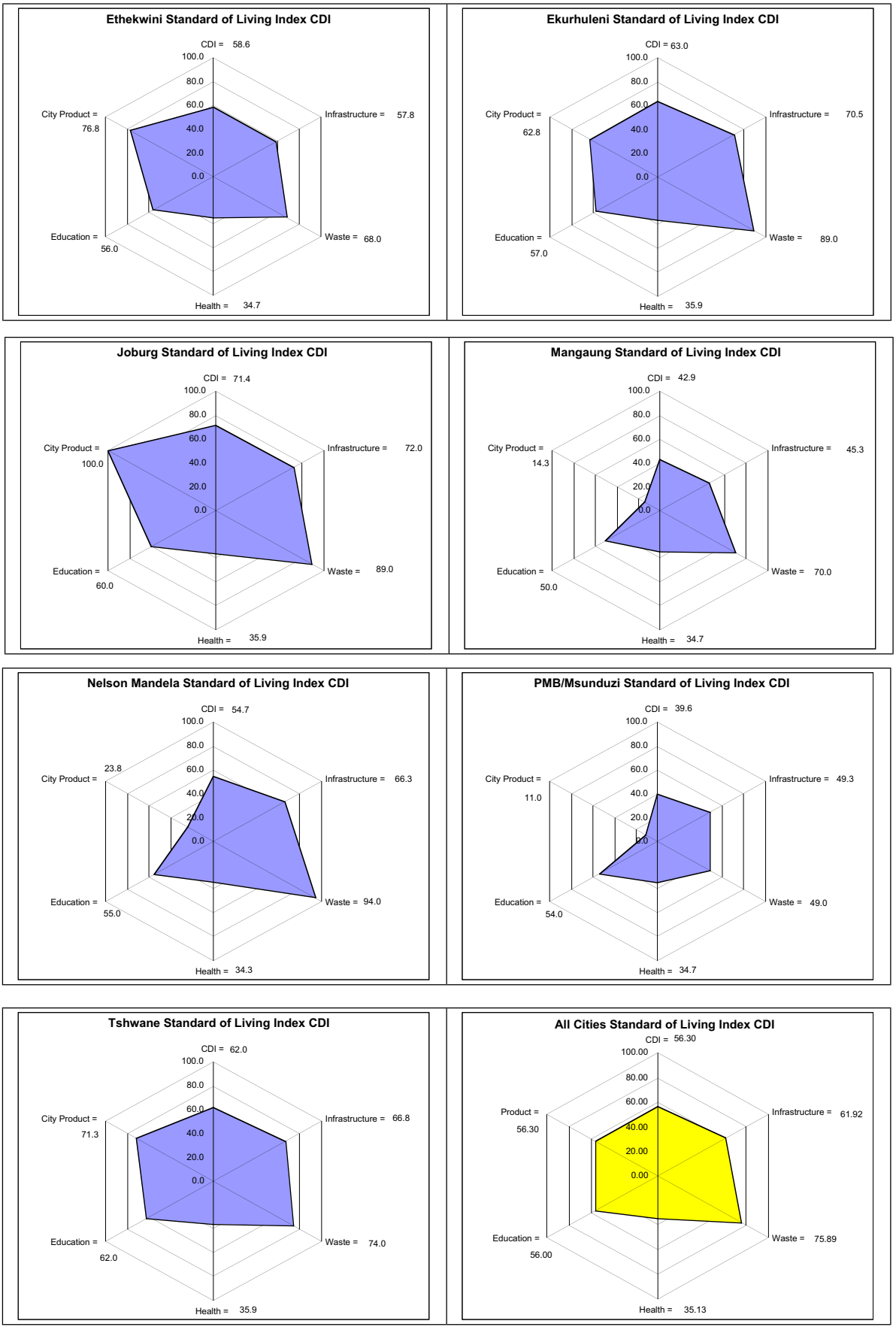
Recording and monitoring poverty

Urban poverty profiles of have been developed following the multi-criteria definition of poverty. Broad categories of information including environmental and health, social and governance, housing and infrastructure and economic indicators inform the poverty profile framework. It is envisaged that these profiles will provide useful diagnostic information in order to identify areas where interventions are required as well as the platform from which trends in chronic poverty might be measured. City and sector based data has been collected and composite indicators such as the City Development Index (CDI) have been calculated using available data.

Figure 7: City Development Index by City

The CDI was developed in 1997 and measures the level of development in cities. The Urban Indicators Programme of the United Nations Human Settlements Programme (UN-Habitat) developed the indicator so that they could rank cities of the world according to their level of development and as a display of indicators depicting development[20]. The CDI cuts across the different clusters identified in the Urban Indicator Framework as it is based on five sub-indices namely, infrastructure, waste, health, education and city product. It is useful as it provides a snap-shot view of how cities are doing with respect to the different indices.





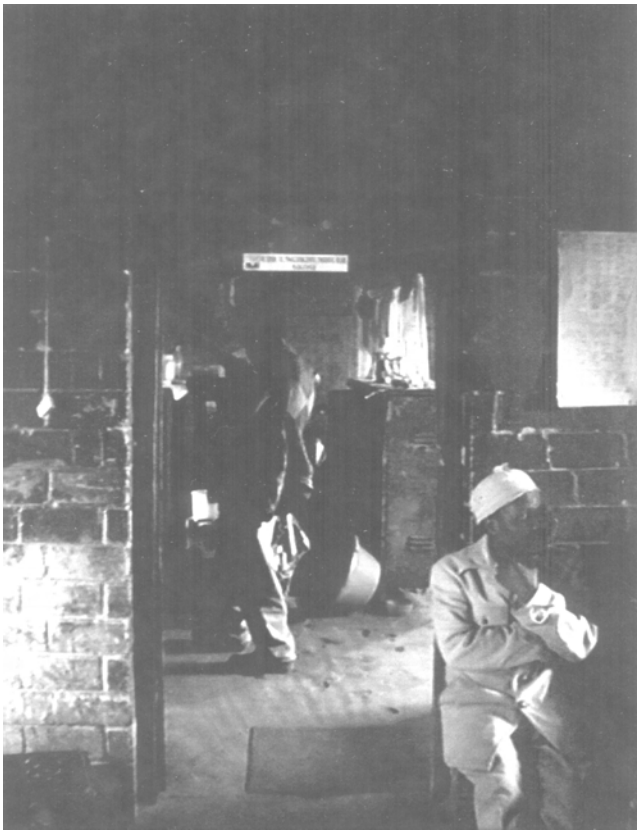
Source: South African Cities Network, www.sacities.net

Box 4: Methodology for calculating CDI

Index	Formula as stipulated by the Guo	As calculated for the Cities
Infrastructure	25* water connections + 25* sewerage + 25* electricity + 25* telephone	
Waste	Wastewater treated*50 + formal solid waste disposal*50	Formal solid waste disposal*100
Health	(Life expectancy – 25)*50/60 + (32-child mortality)*50/31.92	(Life expectancy – 25)*50/60 + normalized infant mortality rate.
Education	Literacy*25 + combined enrolment*25	Literacy*50
Product	(Log city product – 4.61)*100/5.99 or where city product is not provided it can be calculated as 0.45* mean household income	The mean household income for al income groups in the different cities were obtained from the 1960 Census. This was compared, with the highest mean household income normalised to a value of 100
City Development Index	(Infrastructure index + waste index + education index + health index + city product)/5	

In calculating the CDI we have as far as possible used the methodology employed above. In general, census information was used. Where census information was not available, proxy data sets were used. Care was taken to use 1996 figures.

Where indicators were not available at a city level, provincial estimates were used. For example, it proved difficult to obtain health indicators for all cities and so provincial estimates and proxies were used instead. The use of census data also means that the CDIs for the various cities are dated. Many cities have made substantial developmental progress since 1996.



Rural migrants in Dube Hostel, Soweto (Johannesburg). Photograph by Dominic Wooldridge.

The political and strategic importance of poverty reduction as a pillar of developmental local government in South Africa means that there is a call for closer scrutiny of the CDI as a tool to review the position of the chronically poor. While the CDI provides an excellent baseline of poverty that covers not only infrastructure but also economic, health and educational dimensions of well being, there is scope to extend the CDI especially to reflect local specificities of chronic poverty. We therefore propose the introduction of the SAPIC (South African Poverty Indicator for Cities) to be run in conjunction with the CDI. A methodology for producing the SAPIC is outlined below. Like the CDI, the SAPIC (Table 4) uses the notion of the graphic presentation of various composite indicators clustered around a general theme. The five spokes of the SAPIC might include:

1. Safety and Security
2. Good governance
3. Spatial integration
4. Social and economic exclusion
5. A poverty adjusted CDI

Table 4: Calculating the South African Poverty Index for Cities (SAPIC)

SAPIC (Possible indicators)	DATA 'WISH LIST' AND DATA ISSUES	RELEVANCE TO POVERTY IN SOUTH AFRICAN CITIES
SAFETY AND SECURITY Black male victims between 16 and 30 who are homicide victims. Police per 10000 population Juvenile offenders per 10000 population Proportion of alcohol/ drug related crimes.	City and sub city scale collation of crime, prison, and medical data. The weighting and formation of the index needs to balance issues of access to justice, negative impacts of crime and violence and the dependence on criminal livelihoods within poor communities. Figures on crimes against women and children are not included in this part of the SAPIC as they are used as proxy indicators of social exclusion.	Although all South Africans are negatively affected by crime, the poor bare the brunt of the violence and social dislocation of crime. Crime in South African cities, especially among poor communities, is closely associated with drug and alcohol trade and abuse. Unchecked criminality as a livelihood strategy among poor households may threaten overall city governance and public safety. These indicators draw from the Department of Provincial and Local Government's (DPLG's) Key Performance Indicators
GOOD GOVERNACE	(KPI's). They are collected at a municipal scale intended for reporting to national government. The proposed indicators would not be appropriate for sub city application, for instance in an IDP, where alternatives should be proposed.	Although all citizens benefit from sound financial practice, transparent government and effective participatory processes, the poor are most likely to gain from democratic and good governance. They are also most likely to suffer from municipal fiscal crisis and corruption. Without democracy and participatory forums their voices cannot be heard on how the city should be run. Despite its prominence in the pro-poor literature good city governance is not an area where there has been much work on urban indicators and we have therefore adopted some of DPLG's general KPIs for local government.
SPATIAL INTEGRATION Affordability of commuter fares x25 Accessibility to public transport x25 Door to door journey times x 25 Proportion of the population stranded without access to transport x25	Transport is used as a proxy indicator for spatial isolation and exclusion. These indicators draw from the Department of Transport's Moving South Africa. Collection of the data at the city (and sub city) scale is required for the inclusion of the indicator as proposed. Elements of the index overlap with the CDI and there is an ambiguity over the definition of secure tenure with a possible over emphasis on ownership over rental. **Slums Index:** ➥households without tenure ➥households without water ➥households without sanitation and other services ➥households without permanent structures	The legacy of apartheid planning and the high cost of well located land for new subsidy based housing development means that the urban poor in South African are located on the periphery, far from jobs and subject to expensive travel. Extensive subsidies currently maintain this pattern of race and class segregation and mitigate against the integration of cities in line with urban reconstruction policy frameworks that are deigned to enhance the opportunities of the poor. It may be appropriate to use the UN's Slums Index as it captures the problem of the prevalence of the blighted conditions of the urban poor, and it forms part of South Africa's required reporting to the UN for the Millennium Goals, but we have reservations about the proposed computation of the Slums Index.

SOCIAL AND ECONOMIC EXCLUSION RDI (Racial Development Index) = HDI of Africans as a proportion of that of the population as a whole. GDI (Gender Development Index) Rape Gini coefficient for Africans Reported child abuse per 10000 of population	The HDI is a globally accepted index of well being. HDI (Human Development Index) indicators include longevity, education and income – these can all be extracted from the South African census at the city and sub city scale and calculated using the apartheid race classification of African as a proxy for racist exclusion. GDI (Gender Development Index) uses the same variables as the HDI but measures the performance of women relative to that of men. It is used here as a proxy indicator of gender discrimination Although rape and child abuse figures are notoriously underreported, they are collected and can be used to reflect fear and vulnerability. Gini coefficients measure inequality – traditionally in income. The use of the African Gini is designed to show that race is no longer a reliable predictor of poverty, as there is increasingly extreme inequality within 'race' groups. Similar measures could be made of any 'race' group.	Key lines of exclusion and marginality in South Africa include racism, sexism, language discrimination and xenophobia. An overt 'class' inequality transcends these divisions and is a force that prevents many of the urban poor from attaining their full human potential. Many of the best indicators of exclusion are qualitative rather than quantitative. We have adopted racialised, gendered and income linked versions of standard indicators of well being (the HDI) and of inequality (Gini coefficient) as well ass rape and child abuse figures to highlight vulnerable groups.
POVERTY ADJUSTED CDI CDI for Africans CDI for residents of informal backyards and informal settlements CDI for the lowest income quintile	Not all variables of the CDI can be adjusted for race or for housing type and income quintile. But the infrastructure, waste, health and education variables can be disaggregated in this way and if income rather than GGP is used for the product Census 1996 can be used to calculate the poverty adjusted CDI.	The CDI is a solid general measure of poverty, but it measures average performance and, especially in highly unequal contexts such as South African cities, fails to reflect the position of the poorest of the poor. By running the CDI for Africans (the population most negatively impacted by apartheid); the lowest income quintile and those in informal settlements (the housing and infrastructure poorest) we establish a general idea of development from the perspective of the poor of the city.

Conclusion

The problem of poverty in South Africa is increasingly an urban one. Ensuring that the nation engages a path of sustainable development will not occur unless the urban poverty problem is addressed and significant resources are targeted at its reduction or eradication. However, without reliable statistical and methodological tools for assessing the nature and extent of poverty in cities, developmental action is not only difficult but the limited resources may be misdirected. In this paper we have argued that it is imperative that the drivers of urban poverty be identified and that clear indicators that reflect the varied dimensions of poverty be developed. In this regard the generic model proposed by the UN Indicators working group of the City Development Index is a useful starting point, but substantially more nuanced evaluations are possible. In particular we recommend the development of locally specific poverty indices that use available data, ideally data that can be disaggregated to the sub-city scale, and that reflect particular dynamics that underpin the poverty profile of cities. Our proposal of the South African poverty index not only draws directly on our understanding of the apartheid legacy and its impact on urban poverty profiles, but also addresses the developmental vision of the post apartheid era. In this regard the South African poverty index reflects indicators that show the imperatives of reducing inequality, the establishment of good governance and the promotion of social exclusion.

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"New Wave" Economic Development: The Louisville Approach

by Stuart C. Strother

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Introduction

Louisville, Kentucky consistently receives high marks in many comparative studies of U.S. cities. Twice in the past five years, *Partners for Livable Communities* has included Louisville in its list of the top twenty-five "most livable" cities in America.

The city has received numerous accolades in each edition of the Places Rated Almanac. Louisville's reputation as a desirable place to live, work, and play can be attributed to many factors such as a low cost-of-living, a mild climate, a central geographic location, a growing economy, affordable housing, an excellent educational system, first-rate healthcare facilities, and a vibrant arts community. While some of these factors have developed naturally over the years, many of the city's advantages are the result of a forward-thinking policy approach at the local government level. This article briefly describes an innovative policy approach dubbed "new wave" economic development, and cites examples of how these policies have contributed to economic growth in Louisville, Kentucky.

"New Wave" Economic Development

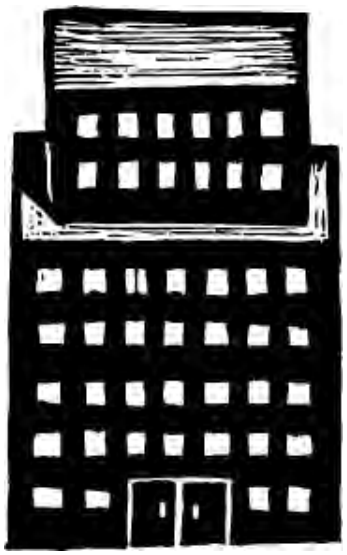
The earliest economic development policies, often called "smokestack chasing," were aimed at the attraction of new firms into a state or local economy. In the beginning of the twentieth century, states in the south and west began luring northeastern industrial firms with numerous types of fiscal incentives. To entice firms to move their operations, state and local governments offered a wide array of incentives including grants, loans, tax-exempt bond financing, tax abatements, tax exemptions, tax credits, infrastructure development, regulatory relief, and others. Many firms viewed these government incentives as excellent opportunities to increase their profits, so they relocated to the south and west where land and labor costs were also typically lower.

In the 1970s and 1980s, state and local economic development officials continued their efforts to attract new firms, but also started moving towards economic development policies designed to protect their economic base and to encourage the development of new entrepreneurial businesses.

City of Louisville at dusk.

Research by MIT physicist David Birch discovered that small businesses are responsible for most of the job creation in America. Birch's empirical findings shifted attention to firms of all sizes, large and small, whereas before the 1980s much macroeconomic thought, and therefore policy, concentrated solely on large companies. Congress and local economic development officials have since created many new policies that favor and encourage entrepreneurship. Local government officials functioned as entrepreneurial consultants and employed new tools such as business incubators, assistance with hiring and training, vendor/supplier matching, export development assistance, import replacement programs, technical assistance, and local business publicity programs. Retention and expansion programs also included fiscal incentives such as microenterprise programs, revolving loan funds, matching improvement grants, below-market loans, enterprise zones, and tax increment financing. These policies have been instrumental in the expansion and creation of small businesses.

By the 1990s, virtually all states and cities were employing the same economic development programs for business attraction, retention, and expansion. Eager to increase their profits, private firms put states and cities in bidding wars for their business. For instance, the Hyundai Corporation put Kentucky and Alabama in a bidding war for a new manufacturing facility in early 2004. Although Kentucky offered $123 million in incentives, Hyundai chose Alabama's offer of $118.5 million explaining their choice was partly based on average temperatures and the fact that Kentucky's offer was not presented as quickly as the Alabama offer. Considering the minor temperature differences between the two states and the fact that Kentucky's offer was presented only eleven days after the Alabama offer, one can't help wonder if the bidding war was just a negotiation tactic. Perhaps Hyundai executives had already made their decision and Kentucky was invited to bid just to squeeze more taxpayer dollars out of Alabama.



Many scholars, politicians, and taxpayers have argued that the incentives are out of control, resulting in a zero-sum game where one region grows only at the expense of another region. Reformers have requested that Congress intervene and end the bidding wars between states and cities. But the bidding wars for business have not ended. Every city (and state) now doles out corporate welfare equally, therefore leveling the playing field of competition. To cease offering incentives would certainly put cities at a disadvantage. To gain an advantage many cities have begun employing a more creative policy approach, called "new wave" economic development in this article. The "new wave" economic development approach described in the next section offers an alternative approach for states and cities.

"New wave" economic development is an outside-the-box policy approach that incorporates the cautious use of traditional economic development policies such as industrial recruitment, but relies heavily on innovative policies that are more appropriate in the new global economy, such as public-private partnerships and sustainable economic development. Unlike traditional economic development that narrowly focused on attracting and retaining large industrial firms, this approach takes a more holistic view of the local economy and considers all economic actors including large firms, small firms, and individuals. "New wave" economic development is characterized by strategies such as differentiation, sustainability, low-cost alternatives, partnerships, industrial clusters, and entrepreneurship, which lead to creating a fertile business climate, developing human capital, modernizing infrastructure, improving quality of life, developing the arts, welcoming immigrants, and even chasing a few smokestacks. These concepts are explained further below and illustrated with examples from the Louisville experience.

The Louisville Approach

Louisville was hit especially hard by the nationwide recession of the 1980s. A large number of firms left the city including major employers such as Belknap Hardware, International Harvester, and Columbia/HCA. Coupled with a general decline in manufacturing jobs in the macroeconomy, the city's tough union reputation also contributed to the exodus of many firms and hindered the attraction of replacement firms. Many jobs were lost. The economic decline was also aggravated when the central city population declined by almost 15% from 298,694 in 1980 to 256,231 in 2000 (U.S. Census, 1988, 2000). Much of this migration was from the central city out to suburban areas or out of the region altogether.

Public and private city leaders responded to the economic crisis with a host of innovative economic development programs guided by the entrepreneurial leadership of Mayor Jerry Abramson, who served from 1985 to 1998 and was again re-elected in 2002 to lead to newly managed city and county government. From 1998 to 2002, Mayor David Armstrong leaned on his experience as the former head of

the state economic development agency to implement a number of ground-breaking projects as well. Non-governmental organizations also worked at developing the local economy, including Greater Louisville, Inc. (the city's chamber of commerce), and the non-profit Downtown Development Corporation. Private foundations contributed financial and other assistance to the effort including the J. Graham Brown Foundation, the Gheens Foundation, and the W. L. Lyons Foundation. Many private firms also participated in these efforts especially in the area of the arts.

Through the collaborative efforts of various public and private entities, the Louisville economy has turned around. Programs were implemented that effectively attracted new firms and retained footloose existing firms. Aggressive programs were implemented to redevelop the city's abandoned urban core, to revamp the crumbling waterfront, and to revitalize urban neighborhoods. In 2002 the city of Louisville merged with Jefferson County, recapturing much of its lost population, and resulting in a merged population near 700,000. City leaders proudly boast that the city is now the 16th largest in the U.S., a fact that is expected to raise its national profile, and hopefully also its economic prospects. The Louisville approach fits well within the description of "new wave" economic development. What follows is a description of specific "new wave" policies and explains how each has been successfully implemented in Louisville in recent years.

Differentiation

Since all cities and states are now participating in the incentive bidding wars, cities and states must find ways to differentiate themselves from the competition. The "new wave" approach incorporates elements of traditional attraction, retention, and expansion techniques, but also employs new strategies designed to leverage a city's unique assets. For example, the Louisville Slugger Museum, the Kentucky Derby Museum, and the soon-to-be completed Muhammad Ali Center are all tourism assets with unique ties to Louisville's history. The Ali Center, serving as a conference center as well as a gallery devoted to the life and ideals of Muhammad Ali, is alone projected to bring in thousands of additional visitors to Louisville each year. While other cities have their own distinct features, no other city offers these same Louisville-based attractions. Louisville's latest developments differentiate the city even more from its competitors.

Sustainability

The "new wave" approach also favors proactive investment in sustainable development projects that show long-term promise, rather than reactively "giving away the farm" to every business that asks for incentives. The label "sustainable economic development" implies that public assistance is given to help initiate a worthy project, but the project must eventually prosper on its own without public aid. Examples of sustainable economic development programs in Louisville include the city's three business incubators that provide low-cost office space, clerical support and business consulting during the first few years of a new business.

Another aspect of sustainability is that states and cities must be willing to reject certain business propositions to ensure that scarce public funds will pay dividends in the long run. In a press release after losing the bid for the Hyundai plant, Governor Patton remarked that Hyundai was not satisfied with Kentucky's $123 million package and that they had demanded more. Patton remarked, "We insisted on protecting the interests of the Commonwealth. There were certain things in the agreement we didn't agree with, that we simply could not do" (Lyne, 2004). While we do not know exactly what else Hyundai demanded, Patton's decision to protect the state's interests can be applauded. Critics have argued that the automotive plant bidding wars are zero-sum games. If so, it would have taken many years before the benefits to Kentuckians surpassed the $123 million investment of public funds and forgone taxes.

Low Cost Alternatives

Another aspect of the "new wave" that is surprisingly overlooked by many economic development practitioners is to leverage low-cost policies. Numerous growth-stimulation programs have been identified in the economic development literature that bear little or no costs yet can yield tremendous benefits. Some examples include business roundtables, achievement awards, zoning simplification, regulatory flexibility, centralization of bureaucratic functions, vendor/supplier matching, and import replacement.

Import replacement is a very simple low-cost economic development technique—convince local businesses to buy from each other to create a multiplier effect in the local economy. To attract the Mercedes plant, the state of Alabama agreed to purchase Mercedes vehicles. The "Buy Oregon" project in Eugene, Oregon, helps local contractors because they alone are allowed to bid for regional manufacturing subcontracts. In Louisville, the import replacement technique was a vital part of the successful effort to retain UPS in the local economy. The city agreed to use UPS exclusively for its entire package mailing needs, and convinced many local firms to do the same.

New Partners

City governments often lack the funds and expertise to complete many worthy development projects. Private firms often lack the political and regulatory influence for many of their desired projects. In recent years, local governments have looked beyond their traditional partners at the state and federal level, and have begun partnering directly with private firms to provide public goods and services. In an ideal situation, the government uses private capital investment to provide a worthy public good or service, and the private firm earns a profit. In a typical public-private partnership, the objective is to increase the number of jobs or the number of employers in a region, or to revitalize the physical assets of an urban area.

In the late 1990s, city leaders learned that UPS was considering relocating their headquarters operation from Louisville to another city that could more adequately staff UPS's late night shifts (Koven and Strother, 2002). Traditional economic development incentives were offered in an attempt to retain UPS, but in the end, it was the innovative Metropolitan College public-private partnership that closed the deal. The program was designed to increase the number of part-time workers during UPS's hard-to-fill third shift. State and local government provided numerous benefits to program participants including free tuition at the University of Louisville and Jefferson Community College, a housing stipend, a book stipend, and special bus routes. UPS provided the participants with competitive wages, full benefits (even for part-timers), bonuses and opportunities for advancement. The stabilization of UPS's part-time workforce led them to give the green light to expand their operations, and the new Worldport package processing facility (the size of 80 football fields) was built. Stakeholders agreed that the public-private partnership was a great success in helping retain UPS in the local economy.

Many other public-private partnerships have recently been initiated as part of Louisville's overall economic development efforts including partnerships to develop the Waterfront Park, to create the Downtown Housing Fund, to renovate the Clock Tower building, and to establish the eMain Program. All of these partnerships are examples of innovative outside-the-box efforts to involve private expertise and private capital for economic development projects that the city government could not afford on its own.

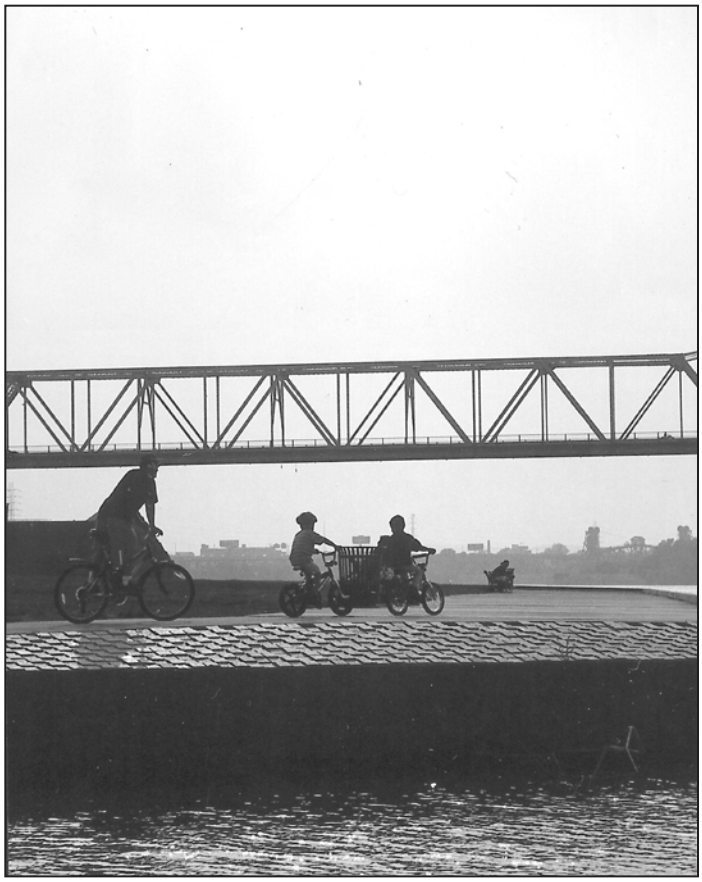
Developing Industrial Clusters

Another key characteristic of the "new wave" approach is an emphasis on developing specific industrial clusters, rather than general smokestack chasing. According to Harvard professor Michael Porter, the potential benefits of developing specific industrial clusters far outweigh the benefits of a shotgun development approach (1998).

Besides manufacturing and healthcare, shipping is one of Louisville's most important industrial clusters. Because of the city's central geographic location, it has served as "Gateway to the South" for more than 150 years. Local leaders have done well to develop the shipping industrial cluster, and today the city remains an important distribution hub with major river, rail, road, and air connections. The relocation of the headquarters of United Parcel Service to Louisville in the 1980s and a major airport expansion in the 1990s have supported growth in the shipping sector. After the expansion of UPS, other shippers such as FedEx and DHL have also recently expanded their operations in the city.

Fostering Entrepreneurship

Entrepreneurship is an essential part of any growing economy. Entrepreneurs create new jobs and usually spend and invest their personal wealth inside the community in contrast to large corporations which send their profits back to a headquarters office in another locale. Local governments can foster entrepreneurship through programs such as business incubators, microenterprise programs, revolving loan funds, matching improvement grants, marketing assistance,



Scene from Louisville's waterfront

management training, executive-on-loan programs, and others. These business development initiatives typically provide capital and training, two essential elements needed by any start-up business.

Local economic development officials can also help local businesses secure assistance from other governments. As a result of the Small Business Innovation Research program created in 1982, each federal agency allocates four percent of its budget to fund innovative small firms (Audretsch, Weigand, and Weigand, 2002). The federal Small Business Administration also offers numerous programs designed to help entrepreneurs including assistance with technical, financial, and legal matters.

Development officials should not only foster the growth of new entrepreneurial companies, but also aid the entrepreneurial exploits of existing companies. One program that does exactly this is Louisville's High Impact Portfolio. Created through a partnership between Greater Louisville, Inc. (the private chamber of commerce) and the City of Louisville, the program proactively singles out local companies with high-growth potential and offers them assistance with training, taxes, networking, hiring, and planning (Lynch, 2004).

Creating a Fertile Business Climate

Typical elements of a fertile business climate include the absence of labor problems and a reasonable tax structure, but having an efficient bureaucracy can be just as important. Many cities, such as Louisville, have consolidated bureaucratic functions related to business into a single "one-stop shop." In a recent announcement made by Citigroup that the company planned to build a new call center in Louisville and hire 1,600 new employees, the spokesman stated, "Our experience with your merged government has been streamlined, professional and extremely efficient in all of our dealings in making this happen" (Tompkins, 2004, p. F2). Dealing with one government ensured that the company did not have to negotiate with multiple agencies for permits, licenses, and incentives. Research by Sjoquist (1982) also suggests that consolidated governments provide higher levels of service, so the recent merger of Louisville with Jefferson County bodes well for the city's future economic development efforts.

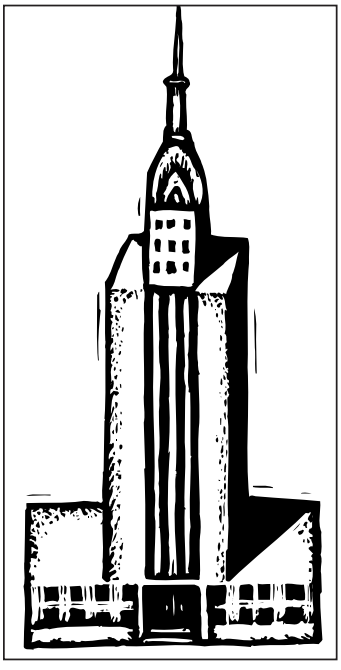
Developing Human Capital

Research has shown a link between human capital and economic growth (Becker, 1970; Asefa and Huang, 1994). A study by Warner noted, "Evidence suggests that a strategy focusing on human capital is more effective at stimulating per capita income growth than one designed to reduce firm costs" (Warner 1989, p. 389). In other words, investing in a city's workers is better than investing in a city's firms. State and county governments are the primary providers of public education, and the private sector provides much of the training for the skilled trades, such as tool-and-die making and information technology. Although normally beyond the scope of the work typically performed by economic development practitioners, human capital programs can still be a vital part of a city's overall economic development plan. The innovative Metropolitan College program described above illustrates that economic development practitioners can implement programs that enhance human capital while still meeting the traditional goals of business retention and business expansion. In the new knowledge-based economy, human capital investment is a crucial aspect of "new wave" economic development.

Modernizing Infrastructure

Physical infrastructure development is one of the perennial tools of economic development for business attraction. This includes electricity, natural gas, telecommunications, water lines, sewage lines, public transportation, roads, railroads, waterfronts, and even airports. To remain competitive, city economic development officials frequently offer infrastructure incentives to potential firms in the form of direct or matching improvement grants. Local government officials secure the funding on behalf of the private firm from state transportation departments or through the federal government's Community Development Block Grants. Industrial firms are generally more concerned with roads and utilities, while new economy firms consider telecommunications one of the most important infrastructure assets.

A major component of Louisville's "1990 Plan" was to modernize downtown infrastructure. A recent report showed that the downtown area is well equipped regarding infrastructure (Downtown Development Plan, 2002, p. 38). After driving in cities like New Orleans, Chicago and New York, a person appreciates how well the roads have been maintained in Louisville. The city also has a mature telecommunications network. Digital subscriber line service, for example, is available throughout the city, unlike the rest of the metropolitan area. Future plans include updating infrastructure at the west Louisville Shippingport area, erecting two new Ohio River bridges, and building a light rail system.



Improving Quality Of Life

Cities with more amenities are thought to have an advantage in the competition for new firms and new workers. Urban amenities are thought to attract people with advanced skills who prefer to live in areas that have a high quality of life. High tech firms that depend on a skilled labor force are therefore more likely to locate in cities with a better quality of life. Focusing solely on developing more urban amenities does not guarantee economic growth, but a higher quality of life can certainly be the tiebreaker between cities competing for high tech workers and firms.

Louisville's Downtown Development Corporation is attempting to attract educated, creative individuals by ensuring that the quality of life in the city is attractive. Through a public-private partnership, $6 million was raised to provide low-interest loans for the development of downtown housing near the new parks and the arts district. Louisville's revitalization efforts have included the building of a world-class skate park, a minor league baseball stadium, a massive waterfront park, a new entertainment district, an arts district, several new museums, and new housing in downtown. The focus is not only on the downtown area, but also includes many of the urban/suburban neighborhood associations which have vibrant community development programs.

Unlike traditional economic development programs that primarily focused on the needs of large corporations, the "new wave" also considers the poorest residents of the city. So-called "equity development" techniques focus on providing affordable housing and equitable job opportunities for the poor (Fitzgerald & Leigh, 2002). Brazeley's article in this issue tells the story of how dilapidated public housing in Louisville's Russell neighborhood was replaced with new mixed-income housing as part of the federal Hope VI grant program.

Developing the Arts

In his influential 2002 book, *Rise of the Creative Class,* Richard Florida suggests that creative class members are the key drivers of economic growth. Creative class members make up more than 30% of the U.S. workforce and include scientists, engineers, architects, educators, entertainers, writers, and artists. Florida examined creativity, diversity, high-tech and innovation in more than 300 urban regions

An areial photograph of the Health Sciences Center in downtown Louisville, Kentucky

and found that cities with high levels of creative activity are experiencing economic prosperity. In order to fuel future economic growth, cities must appeal to creative class types, who are attracted by certain quality of life amenities such as entertainment, the arts, universities, and recreation as well as intangibles like tolerance and diversity.

The most recent Places Rated Almanac labels Louisville one of twelve "small winners" when it comes to a vibrant performing arts scene. Because Louisville is the only major urban center in a large geographic area (unlike Eastern seaboard cities that butt up against neighboring cities), Louisville enjoys more than its share of scarce arts amenities (2004, p. 437-438). The city has about twenty live-performance venues, world class museums, and dozens of local art galleries. The arts scene in Louisville has tripled in size over the past five years. The city provided free trolleys throughout downtown for the First Friday gallery hop, and virtually every event has witnessed the grand opening of a new gallery. The city's Gallopalooza public horse sculpture program enhances the streetscape and generates additional buzz in the city. By planning events through collaboration with local artists, and securing donations from local companies and foundations, the city's art scene has exploded, with only minimal use of public funds.

The growth in Louisville's art scene, public parks, and recreational facilities augments the city's tourist and convention business. These urban amenities not only make the city more attractive to visitors, but also foster more "hometown tourism" which has positive effects on the local economy.

Smokestack Chasing

While the term "smokestack chasing" is a not-too-subtle indictment against public officials who are willing to sacrifice the environment and public health in favor of economic growth, some traditional business attraction techniques still have a place when used wisely. Just to keep the playing field level when competing against other cities, a "standard offering" of fiscal incentives must be on the table. The new smokestack chasing, however, might be better labeled "silicon chasing," as in Silicon Valley. Research shows that small companies (Birch, 1987), and high-tech firms (Bee, 2000), are the new drivers of economic growth. The smokestack chasers of today would be wise to chase firms that meet these two criteria.

In recent years Louisville has successfully attracted the international headquarters of Yum! Brands (the parent company of KFC, Pizza Hut, and Taco Bell), and the headquarters of the Presbyterian Church (USA). Through a creative partnership, Mayor Armstrong convinced the Cordish Company to invest much of its own resources to redevelop the outdated Galleria district into 4th Street Live!, a 6-block pedestrian entertainment district that includes a fitness center, bowling alley, retail shops, and many ultra-trendy restaurants and bars. Louisville's attraction efforts also include trade missions abroad and domestic recruitment trips. In June 2004, Mayor Abramson traveled to meet with executives of seven different high-tech and biotech firms to try to convince them to relocate their operations to Louisville (Howington, 2004).

All of Louisville's economic development plans have not been successful, however. The 2002-03 bid to lure the Charlotte Hornets was opposed by many citizens who did not support the idea of building a new arena with taxpayer dollars. Louisville ultimately lost the deal when New Orleans officials handed Hornets executives a briefcase containing $100,000 cash (Armstrong, 2004). The city also failed in its attempt to attract the Harry and David gift basket company. Company executives were turned off when their inquiries were only met by a lukewarm response from city officials (Armstrong, 2004). Efforts to retain longtime Louisville employer Brown & Williamson Tobacco Corporation (B&W) were also not met with success. Because of a planned merger with R. J. Reynolds, 242 redundant jobs at B&W's Louisville headquarters office have been eliminated (Green, 2004).

Conclusion

This article describes many of the economic development strategies and projects implemented in Louisville, Kentucky over the past two decades. The city suffered a major economic setback and significant job losses in the national recession of the 1980s, but through a combination of entrepreneurial leadership from the Mayor's office, direct participation from local business people, and other market forces, the city's economy has recovered. Louisville's example shows that city leaders must address their unique economic development challenges with their own unique policy mix. The Louisville case represents a "new wave" economic development approach that is characterized by using traditional industrial recruitment tactics only sparingly and instead relying heavily on innovative outside-the-box programs such as public-private partnerships, human capital development programs, and sustainable development. Because "new wave" economic development leverages a city's unique assets, the approach can differentiate a city and give it an advantage over other cities in the competition for increasingly mobile firms and individuals. The "new wave" approach can be instrumental in turning around a local economy that has suffered major economic setbacks, and the Louisville approach described in this article serves as an excellent example of economic recovery for other cities.

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Sustainable Development After the Revolution: Las Terrazas, Cuba

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According to the legend and lore of the Cuban revolution, Che Guevara and his band of guerillas would retreat into the terrain and lush forests of Las Terrazas along the San Jaun River trail to regroup and rejuvenate before they continued their fight against the Batistia regime.

Almost a half-century after the revolution, Che and two other Marxist Revolutionaries had big plans to change the structure of their country, its thought, education, and land reform. Osmany Cienfugoes known as the "markist trinity," together with Che Guevara and the bearded one (barba), formed the party that led the land reform in 1968 and created Las Terrazas. Las Terrazas, today a UNESCO world heritage site, was an extensive reforestation project that turned what some call a desolate mountain into a beautiful tropical setting. The forests allowed the residents to live a sustainable lifestyle in harmony with nature through collaborations with entrepreneurs, ecologists and residents who created a "third way" of sustainable development.

Las Terraazas, an hour west of Havana, is in the heart of the Rosario Mountain Chain, a range that covers more than 5,000 hectares. An experiment in sustainable development, Las Terraazas has an industrious community of 1 000 inhabitants who live in harmony with nature. The human footprint is minimal and the surroundings are designed with a view to the aesthetic. Now in its 30th year, the Las Terrazas complex is associated with the Ecological Research Center for Sierra del Rosario Reserve, responsible for monitoring and studying the mountain chain's different ecosystems. Its

Dwelling site at Las Terrazas

importance and interest is heightened by the fact that Las Terrazas is situated in the Sierra del Rosario, one of Cuba's natural treasures, which was designated a Biosphere Reserve by the United Nations Educational, Scientific and Cultural Organization (UNESCO) in 1985.

A Socialist Perspective on Sustainable Planning

Las Terrazas sets an example of Cuba 's concern with sustainability which includes: (1) raising the standard of living by satisfying the material and social needs of the population with an emphasis on raising the educational and cultural level of the population while at the same time focusing on the environment through careful planning of the economic and social development of the country; (2) integrate economic, fiscal, commercial, energy, agriculture and industry policies to protect the environment and guarantee the sustainable use of natural resources in a framework of justice and equity; (3) preserve for the next millennium the social achievements of the revolutionary process; (4) defend collective access to the fundamental social services which are the guarantee of equity supporting sustainability; (5) search for greater efficiency in production processes, alternative sources of energy and sustainable agriculture practices; (6) provide better education aimed at increasing environmental awareness; and (7) find solutions to key environmental problems in the country such as land degradation, water contamination, sewage and environmental conditions in human settlements, deforestation, and loss of biological diversity.

A Capitalist Perspective on Sustainable Planning

What comprises sustainable planning and what doesn't is debatable. But most agree it is an activity which involves business. The zoning of an area directs the types of development that can or can't happen. As discovered by Hawken and Lovins, "the best solutions are based not on tradeoffs or 'balance' between these objectives but on design integration achieving all of them together" (Natural Capitalism, p. xi).

Sustainable Planning is ultimately about ensuring that development continues to occur in such a way that it enables both society and nature to gain in the process. What this means on a practical level varies greatly with the circumstances. In some cases this may involve the exclusion of areas from development altogether to ensure the conservation of biodiversity which simply can't be replaced through revegetation programs. In other cases it will only allow development that observes strict 'sustainability' codes of conduct. Conditions may be placed on development that affects the materials used, property orientation, the use of water, sewage treatment, building design and so on.

The Cuban Position

Cuba has passed through a pre-revolutionary stage, characterized by exploitation and depletion of its natural riches. Since its discovery in 1492 up to the end of the revolutionary period (1959), Cuba has endured four centuries of neocolonial exploitation carried out by the United States of America. The environmental destruction of Cuba during the colonial and neocolonial periods included the depletion of large forest areas and the careless use of land for agriculture and cattle. This resulted in the degradation and erosion of soil, waters, and vegetation. Add to these the deplorable state of health in the population due to the degraded environment, lack of adequate social and medical services and the serious social problems associated with extreme poverty, racial and sex discrimination, social inequality, and illiteracy, and one can better understand how far the country had to move to experience even a modicum of improvement.

This was the condition of Cuba, inherited by the Revolution when it seized power in 1959. Consequently Cuba's leaders declared as its main principle the increase in the level and quality of life of its people, principles which today have resulted in a sustainable form of development. During the first years of the creation of a new Cuban society, the government set as its goals the following:

- Eradicate extreme poverty.
- Transform the agricultural structure.
- Eradicate illiteracy, provide schooling of all children and create an autonomous scientific-technical capacity.
- Lower infant mortality rates and improve health services (infant mortality was reduced from more than 60 to 9.4 per thousand and life expectancy rose from 61 to more than 75 years).
- Create health programs to fight infectious diseases and establish health services to ensure a doctor for every 203 persons.
- Provide citizens with access to piped water and sanitation facilities . (This has increased from less than 50% to 89.1% and 91.5% respectively).
- Increase electric services from 56% to 94%
- Increase the forest area from 14% to 19%

Additionally, a process of territorial planning was developed, which allowed the introduction of an environmental strand in most investment projects with a socioeconomic emphasis .

One particularly significant step in the advancement of Cuban environmental policy was the creation of the National Commission for the Protection of the Environment and Conservation of Natural Resources. The same year the commission was created, Article 27 was included in the constitution which established environmental protection in the Fundamental Law of the country. Later article 33 was passed on January 10, 1981, which represented one of the pioneer laws in Latin America regarding the establishment of global

protection of natural resources. Article 33 established the basic tenets for conservation, protection, improvement, and transformation of the environment through the rational use of natural resources, and thus promulgated an integral policy for the development of Cuba.

During the 1997 Rio Summit On The Environment and Development, Fidel Castro acknowledged the signing of the Convention on Biological Diversity and The Framework Convention of the United Nations on Climate Change. Shortly after the Summit Meeting, Article 27 of the Constitution of the Cuban Republic was passed into law creating the concept of sustainable development for Cuba. That same year, The Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol regarding substances that deplete the ozone layer were put into effect.

In 1993 the National Program for Environment and Development was created and approved, which is the Cuban adaptation of Agenda 21 and includes additional topics in the interest of the developmental strategy of the country. From this program the Territorial Program emerged in order to adapt the larger program to local demands and priorities.

An experimental farm site used for ecotourism.

The difficult economic situation that has affected Cuba for so many years has negatively impacted the protection of Cuba's natural resources and has limited the actions for their conservation. Nevertheless, the country has continued to seek a higher efficiency in production processes; the development of education and a commitment to achieve a higher level of environmental consciousness; the search for alternative energy sources; the use of biological products in agriculture; all of which will be essential actions for its environmental recovery. In spite of the 1991 Russian collapse and withdrawal of economic aid and the 40 plus years of embargo and blockade, Cuba remains strong in its resolve to improve.

John Locke And The Cuban Transformation

John Locke has often been characterized by some as having a Socialist position on the environment due to his discussion of individual liberty and property rights in his "Second Treatise Government." However, Locke's thought is as much libertarian as it is socialist, and therefore his political philosophy can better be described as proto-socialist-libertarian. The essence of socialist libertarian thought comes straight from Locke, and Cuba's future is pinned to this view of the future.

To understand political power as Locke imagined it, one must consider what state all men are naturally in, and that is, *a state of perfect freedom* to order their actions, and dispose of their possessions and persons, as they see fit, within the bounds of the laws of nature, without asking leave, or depending upon the will of any man. A primary tenant of this *state* is *equality,* wherein all the power and jurisdiction is reciprocal, no one having more than another. With the laws of nature to govern the state, comes the obligation of the citizen to use reason as a guide. Given that all human beings are *equal and independent,* it follows that no one ought to harm another in his life, health, liberty, or possessions.

Locke viewed political theorizing as a process of understanding God's intended place for humans in the world. Divorcing Locke's political theory from his spiritual worldview, as libertarians often have done, increases the chances of misunderstanding him. It obscures a rustic but powerful form of socialism based in the Biblical ideas that: 1) People are God's appointed caretakers of the earth; they have a responsibility to preserve nature as God's work (not as mankind's work, e.g., perhaps, not merely to plant trees, but to preserve ecosystems). This sensibility is sometimes referred to in Judeo-Christian thought as "stewardship." 2) Everybody has an egalitarian right of access to the

The village of Las Terrazas

world's natural resources, as a means to living with maximum liberty, and to full participation in God's creation. Simply put, all God's creations, human and natural, are to achieve the fullest expression of their unique traits, and the rules of property must mediate between individuals, and between humankind and nature, to bring about that result. It is to this end that Cuba is striving, and the environmental results thus far show the people's resolve to attain a sustainable society within our lifetime.

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Urban Sustainability and Alternative Energy

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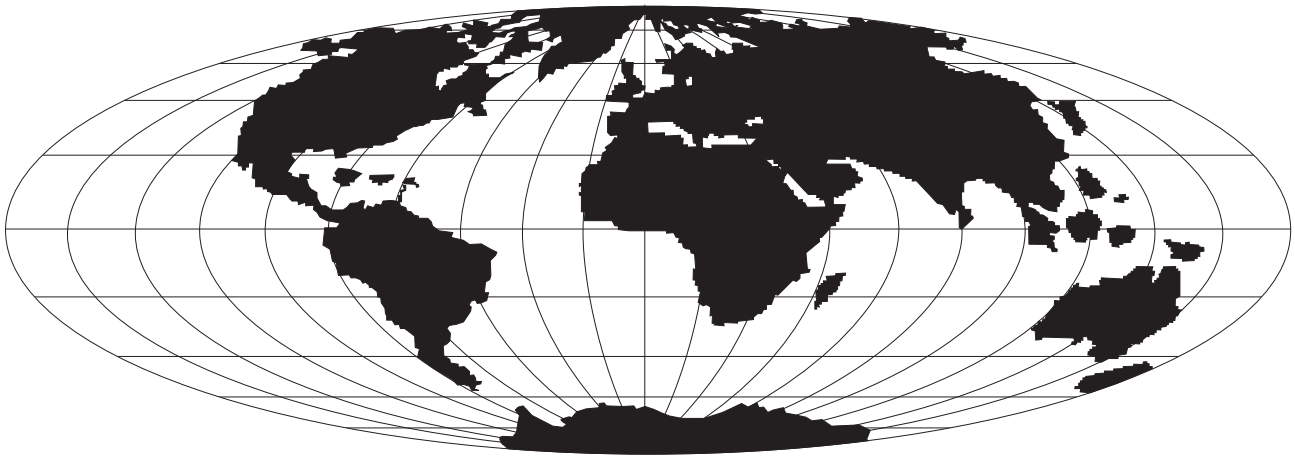
What aspects of sustainable development agendas have implications for urban areas? Can energy conservation and energy efficiency be tools for implementing sustainable activities in urban areas? What examples exist of urban areas that are using sustainable development agendas to reduce urban energy use?

Sustainable development has received significant interest within the planning community. Berke (2002:22) discussed the current debate concerning the "role of sustainable development as an overarching guide to planning that is taking place at the international, national and local government levels around the world". Does the concept of urban sustainability provide a new guiding vision?

Urban sustainability deals with urban development, population, environmental impacts and energy concerns. The purpose of this paper is to discuss urban sustainability, explain the origins of sustainable development and provide examples of cities using the concept. It will be shown that implementing sustainability plans often involves policies that encourage energy conservation, alternative energy and improved energy efficiency.



Background

Evolving during the early 1980s, the theory of sustainable development provides a broad vision while addressing a range of concerns. Its framework allows for a theoretical structure referred to by Berke (2002:22) as "an overarching guide to planning". The report of the World Commission on Environment and Development defined sustainable development as "development that meets needs of the present without compromising the ability of future generations to meet their needs" (Holland et. al. 2000:10).

Representatives from 167 nations attended the United Nations 1992 Conference on Environment and Development. A product of the conference was the Rio Declaration on Environment and Development, referred to as Agenda 21. The agenda provides a set of guiding principles dealing with aspects of development. A central rationale noted in the preamble is the desire to work "towards international agreements which respect the interests of all and protect the integrity of the global environmental and developmental system" (U.N. 1999:1). It suggested that, "States should reduce and eliminate unsustainable patterns of production and consumption and promote appropriate demographic policies" (U.N. 1999: 2).

Environmental protection policies are addressed throughout Agenda 21. In one example it is stated that, "to achieve sustainable development, environmental protection shall constitute an integral part of the development process" (U.N. 1999:2). Another encourages "a spirit of global partnership to conserve, protect and restore the health and integrity" of the earth's ecosystem (U.N. 1999:2). Couch considers Agenda 21 to be the primary plan for sustainable development and suggests that "much of the plan requires action at the local level" (Couch et. al. 2000:141). Sustainable development values nature as an ethical issue and as a principle concept from which to evolve global solutions for urban sustainability, urban development, population, environmental impacts and energy concerns.

Urban Development

Urban sustainability refers to a somewhat idealized model of urban development that attempts to address concerns about urban growth, patterns of urban development and issues that arise as urban development occurs. The paradox of urban development is that while cities provide a concentration of solutions to human needs, cities themselves can be problematic. For example, cities account for the larger share of pollution and inefficient resource consumption.

The concept of sustainable development has been defined by Berke and Manta-Conroy (2000:23) as "a process in which communities anticipate and accommodate the needs of current and future generations in ways that reproduce and balance local social, economic, and ecological systems, and link local actions to global concerns."

For the purposes of this paper, sustainable development is defined as the ability of physical urban development and urban environmental impacts to sustain long-term inhabitation by human and other indigenous species while providing: 1) an opportunity for environmentally safe, ecologically appropriate physical development; 2) efficient use of natural resources such as energy, land and water; 3) a framework facilitating the improvement of the human condition with equal opportunity for current and future generations; and 4) consistently manageable urban growth. The antithesis of sustainable development, non-sustainable development implies growth that is environmentally unsafe, consumes resources inefficiently, degrades the human condition, is characterized by persistently unmanageable development and fails to value social equity.

Louisville Skateboard Park

Urban growth increases demand for resources while enlarging the urban service areas. New buildings, transportation systems, and distribution systems are required to meet the demands caused by urban growth. As new facilities are constructed to meet urban requirements, energy use must be considered in the planning process.

Land is consumed as our cities grow. In need of larger facilities, manufacturing tends to move to the urban perimeter where land is less costly. Roads and infrastructure are extended. Due to in-migration and mergers, cities are occupying more space. Suburban development causes increased energy use as energy is consumed in production of new materials, products and services.

Meanwhile, sustainable development policies often advocate reducing the urban "footprint". Improved infrastructure technologies and more creative design approaches provide other logical alternatives. The end result is that urban expansion significantly impacts world energy consumption as it requires more energy to provide critical urban services.

Population Growth

Rapid population growth on a global scale has increasingly placed a growing burden on our planet's resources, among them energy. Today, over half of the world's population lives in urban areas, gaining over one billion in population in the last 30 years. By 1990, the world urban populations had grown to equal non-urban settlements. Is population growth at this rate sustainable? Are we planning for continued urban growth of this magnitude?

Interestingly, almost all of the 153 million increase in U.S. population between 1930 and 2000 occurred in metropolitan areas. By 1970, more people lived in U.S. suburbs than in either urban or rural areas. Las Vegas, Nevada provides one example. U.S. Census data indicates that the area population increased from 273,000 to 1,376,000 from 1972 to 2000. U.S. examples are dwarfed by the population growth of many cities in the third world (e.g. Calcutta, Mexico City, Shenzhen).

Environmental Impact

Sustainable development deals with negative externalities such as the environmental impact of development. Energy use is a major contributor to environmental pollution and

associated excessive morbidity and mortality. More efficient use of energy in the built environment can have a significant impact in meeting the urban goals of providing appropriate housing solutions, improving transportation systems and reducing environmental impact.

Resource conservation permits the opportunity to provide for urban expansion without constructing additional power generating facilities while mitigating environmental impact. Power plants and vehicles account for a significant portion of sulfur oxides, carbon and nitrogen emissions into the atmosphere.

Energy Concerns

The availability of an inexpensive supply of energy has facilitated urban development and growth. The paradox is that as cities pursue policies to reduce energy use, both total energy use and the costs of energy continue to increase. The U.S., the world's largest energy consumer, provides an interesting example. From 1970 to 1996, total energy consumption in the United States grew from 67.9 quadrillion BTUs to 93.9 quadrillion BTUs. Energy from renewable sources grew from 2.7 quadrillion BTUs, or 4% of the total to 7.2 quadrillion BTUs, 7.7% of the total. In 1999, total U.S. energy use was 96.6 quadrillion BTUs with transportation fuels using 25.9 quadrillion BTUs or 26.8% of the total (U.S. Census Bureau 2000:583).

Urban energy consumption has global implications. Engineers point out that energy use is highly decentralized while energy generation and production tends to be centralized. Energy use has an identified set of benefits and costs. Externalities include not only those associated with water and air pollution but also economic availability and equity issues.

Energy use in the built environment has been increasing due to a number of causes. Rapid increases in population and increases in conditioned space are contributing causes of increasing energy use. The need for highly conditioned space has developed into new standards for human comfort, especially in the workplace. More efficient use of energy in the built environment can have a significant impact on reducing direct economic costs. These costs include the ability to provide for urban expansion without constructing additional power generating facilities and the costs of mitigating environmental impacts. While technologies are available to provide more efficient use of energy, economically viable technologies are often not implemented creating a sort of hyper-inefficiency.

Power production and power use have both urban and regional impact. Where will the next power plant be constructed? Will the strip mine be allowed? Will the oil tank farm be allowed next to the river? How much longer will the nuclear power plant be allowed to operate? How large a commercial zone can be developed given the energy supply available? How can the coal plants be modified to be less polluting? Will more lands be opened for oil drilling?

From a technological capability standpoint, we now have flexibility to select from multiple energy sources to satisfy a given requirement, allowing the most appropriate energy source to be used. There exist improved technologies with which we can design and build facilities that are extremely efficient. However, many of our existing buildings often incorporate few energy conservation features.

In spite of improved design standards, many newer buildings actually use more energy than older ones. This is due to their design, location and the construction technologies employed. Causes for the increases include the changing standards for fresh air admission into occupied space. Increasing ventilation raises the energy costs incurred in producing occupancy air (cooled or heated, humidified or dehumidified) from unconditioned air. In terms of industrial production, while the demand for energy appears to be surging in the service and high tech sectors it has not declined appreciably in other sectors.

Examples of Sustainable Development

As of the year 2000, more than half of the U.S. population

lives in suburban areas. The migration to the suburbs has resulted in increased fuel use due to the distance people have to drive to get to their jobs, ironically often located in the central city. The U.S. Department of Energy (2002) admits that, "the complex problems shared by cities throughout the U.S. are evidence of the impacts of urban sprawl—increasing traffic congestion and commute times, air pollution, inefficient energy consumption and greater reliance on foreign oil, loss of open space and habitat, inequitable distribution of economic resources, and the loss of a sense of community".

Creative local and regional examples of planning initiatives can be found in the U.S. One regional example is the establishment of the Florida Sustainable Communities Network, which strives to incorporate the language of sustainable development into its comprehensive development plans. Most U.S. efforts focus on water systems, land conservation, sprawl mitigation, farmland preservation, and public transportation initiatives (e.g. Civano Sustainable Community Project, Lake Tahoe Regional Plan, the Grand Rapids, Michigan Plan). Santa Monica, California adopted a Sustainable City Program in 1999, mandating that all of its energy must come from renewable sources (Beatley 2000:361). New Orleans and Portland have adopted Climate Change Action Plans, incorporating energy and environmental sustainability as local agendas.

Alternative energy technologies and energy reduction programs are having a localized impact. U.S. school districts and universities throughout the U.S are using performance contracts to implement energy conservation initiatives. While most large hydroelectric sites were built in the 20s and 30s, high efficiency turbines are being installed in many of these existing sites. Micro-turbine technology is becoming economically feasible. Over 1,500 geothermal heating and cooling systems have been installed in Kentucky. Extensive wind farms, employing wind turbine generators are found in areas like North Dakota and California.

The Treaty of Maastricht (1997) incorporates sustainable development as an objective for the EU. The town of Navarra, Spain has the goal of providing 100% of all electrical energy from renewable energy sources by 2010. Ecolonia, in The Netherlands, is a demonstration town for ecological development. The Building Act in Finland "establishes sustainable development as the foundation for land use planning" (Beatley 2000:20). Cities in Sweden have almost 100% participation in their LA21 planning initiative. In the Linz suburb of Pichling, a new solar powered district for 25,000 is under construction. In the UK, 73 percent of local communities are in the process of developing LA21 plans (Beatley 2000: 347-8). Leicester, Leeds and Peterborough are among those localities that have achieved "Environmental City" designations.

Conclusion

It is clear that the concept of sustainable development has a variety of definitions and applications. Aspects of the approaches to urban sustainability, urban development, population, environmental impacts and energy concerns have been discussed in this paper and as is clear from the examples provided, there are numerous projects underway to implement the spirit of sustainable development in urban areas.

While the concept of sustainable development has not yet evolved into a mainstream agenda in the U.S., it provides a framework for future planning and development and a set of guidelines for future policies. The concept has succeeded in providing a basis for integrating solutions that may have significant future impact on urban development, energy use and environmental impacts. Incorporating alternative energy solutions is directly linked to the success of the agenda.

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Employment and Poverty in Delhi Slums

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Introduction

High poverty levels are synonymous with poor quality of life, deprivation, malnutrition, low literacy and low human resource development. It is widely noted that poverty and employment are connected as the poor cannot afford to remain unemployed for long. Urban India is the most vulnerable setting for the population living in pitiable conditions in slum areas. The total slum population in the country is 40.3 million comprising 22.6 percent of the total urban population as of the population census of 2001. This study focuses on the employment and poverty in Delhi slums, particularly in light of the hypothesis of occupational mobility and income mobility. The study examines (1) the employment and educational status in Delhi slums and (2) the extent of poverty through consumption patterns of the population in Delhi Slums.

Problem of slum dwellers is now more acute in almost all mega centres of India including Delhi" Photopgrah by Mr. Juan Pedro Schmid

Linkages between Poverty and Employment

The relationship between poverty and employment depends on the extent to which income generated from employment allows workers and their dependents to obtain goods and services necessary to meet minimum needs. As no reliable data is available on poverty and employment in Delhi slums, we conducted a field survey of 196 households in eleven slum clusters, spread across different parts of the city. The sample reflects diverse age, income, education, households' size groups, and food consumption pattern.

A comparison of work force participation rate by sex in the survey population reveals that women were economically less active than men. Pooling together the population of the eleven slums, we found that the male participation rate was 52.08%, which is almost 9 times higher than the female (5.80%) participation rate. The lower participation of women could be attributed to their lower levels of education resulting in higher probability of their remaining unemployed. Most of the male respondents were not educated (53.41%) and worked as temporary and casual workers in the informal manufacturing sector. As many small employment units are likely to be forced to close down in the city because of pollution problems, workers are further faced with the risk of insecurity regarding employment. In addition, the fact that many of them belong to socially disadvantaged groups acts as a hindrance to their access to jobs or even job information. In spite of the poverty of households, child labour was virtually absent in all the slums. The absence of child labour could be due to under reporting on the part of households for fear of legal action. Curiously enough, there were very few older workers aged 60 and above, so most of the workers in the survey population were middle-aged men and women belonging to the working age groups (15-59).

Unemployment levels in the slums differed across sexes in both working age groups. The unemployment rate for men

(15 years and over) was 21.85%, but for women was as high as 91.40%. The rates also differed across slum clusters depending on the availability of work in the vicinity. Sunrise industries around slums offered more employment opportunities to both men and women. But most of the population was engaged in either informal sector activities as wage labour or own account enterprises. Most of the workers were employed as labourers, factory workers, auto rickshaw drivers and rickshaw pullers (Table 1). The highest average income per day was, however, earned by small teashop owners, followed by auto rickshaw drivers and mechanics.

Table 1: Distribution of Households by Income and Profession

S. No.	Profession/ Occupation	No. of Persons (% of total employment)	Percentage Total Population	Average Income Per Day (Rs.)
1.	Auto Rickshaw Driver	48 (14.33)	4.90	87.48
2.	Cleaner	21 (6.27)	2.14	86.86
3.	Shop Keeper	25 (7.46)	2.55	67.07
4.	Factory Worker	39 (11.64)	3.98	68.05
5.	Labourer	50 (14.93)	5.10	64.75
6.	Mechanic	13 (3.88)	1.33	87.31
7.	Rickshaw Puller	32 (9.55)	3.27	85.47
8.	Self Owned Tea Shop	13 (3.88)	1.33	155.51
9.	Tailoring	14 (4.18)	1.43	63.69
10.	Petty Traders	14 (4.18)	1.43	61.49
11.	Employed in a Regular Job	15 (4.48)	1.53	61.56
12.	Miscellaneous	51 (15.22)	5.20	76.58
Total		335 (100.00)	34.18	

Note: Percentage within the parenthesis shows the profession out of total employed persons. Total Survey Population is 980. (RS.) = Rupees

Table 2 gives a comparable picture of monthly expenditure per person on food and non-food items. We tried to compare monthly expenditure on food and non-food items of Delhi slums with India (Urban and Rural, columns 3 and 6) and Delhi (Urban and Rural, columns 4 and 7). As the data shows, the expenditure on rice and wheat in Delhi slums is higher than that in Delhi (urban and rural) and in the entire country of India (urban) and lower than that in rural India. Expenditure on pulses (Pulses are legumenous plants such as lentils, beans, etc.) and their products is the highest in the slums in all categories, i.e. India (urban, rural) and Delhi (urban, rural). It shows that households in slums are depending more on cereals and pulses for their calorie intake. The lowest expenditure in the Delhi slums was on milk and milk products, which indicates that the slum dwellers were unable to afford a nutritious diet. However, they were supplementing their diet with meat, fish and eggs as shown in the table. Slum dwellers were spending 72.76% of the total expenditure on food (which is the highest in all the categories) while 27.24% of the total expenditure was used for non-food items (which is the lowest in all the categories). This data clearly reflects the poor economic status of this population. Around 32.40% of all non-food items was used for fuel and light while 6.62% was used for medical treatment. The average expenditure on education was 12.84%, which is lowest among all categories except in rural India. This could be because they have more opportunities for educating their children in Delhi as compared to many areas of the countryside.

Table 2: Percentage Composition of Average Monthly Expenditure Per Person on Different Group of Items of Consumption for Delhi (Urban and Rural), All India (Urban and Rural) and Slums in Delhi

S. No. (1)	Items (2)	India (Urban) (3)		Delhi (Urban) (4)		Slums of Delhi (5)		India (Rural) (6)		Delhi (Rural) (7)	
		% of Food Exp.	% of Total Exp.	% of Food Exp.	% of Total Exp.	% of Food Exp.	% of Total Exp.	% of Food Exp.	% of Total Exp.	% of Food Exp.	% of Total Exp.
1.	Rice & Wheat	25.02	15.73	15.26	9.22	28.65	20.85	35.92	25.92	16.46	10.59
2.	Pulses & their products	5.68	3.57	4.97	3.00	9.91	7.21	6.11	4.41	5.42	3.49
3.	Milk & Milk products	17.37	10.92	25.90	15.64	10.31	7.50	14.06	10.14	30.44	19.58
4.	Vegetables & Fruits	15.12	9.50	20.43	12.34	19.56	14.23	12.66	9.14	16.52	10.63
5.	Meat, Fish & Eggs	6.27	3.94	3.85	2.33	13.06	9.50	5.33	3.85	1.82	1.17
6.	Sugar	3.28	2.06	2.54	1.54	4.03	2.93	3.82	2.76	3.25	2.09
7.	Salt & Spices	10.75	6.76	8.95	5.40	8.13	5.92	10.76	7.76	9.77	6.29
8.	Other Items	16.51	10.38	18.10	10.93	6.36	4.62	11.34	8.19	16.32	10.50
Total	All Food	100	62.86	100	60.40	100	72.76	100	72.17	100	64.34
9.	Fuel & Light	26.25	9.74	23.76	9.41	32.40	8.83	31.30	8.71	24.31	8.66
10.	Clothing	20.50	7.62	18.48	7.32	23.47	6.39	28.45	7.92	22.66	8.08
11.	Footwear	3.98	1.48	5.51	2.18	6.75	1.84	4.60	1.28	6.55	2.34
12.	Rent & Taxes	17.44	6.48	20.33	8.05	17.92	4.88	2.30	0.64	8.67	3.09
13.	Education	14.68	5.45	19.60	7.76	12.84	3.50	8.02	2.23	20.52	7.32
14.	Medical Expenses	17.15	6.37	12.32	4.88	6.62	1.80	25.33	7.05	17.29	6.17
Total	All Non @ Food	100	37.14	100	39.60	100	27.24	100	27.83	100	35.66

Sources:

1. NSSO Report No. 454: Household Consumer Expenditure in India, 1999-2000@Key Results.

2. Computed from survey information.

Notes: 1. Rice and Wheat includes Cereals, Gram and Cereal substitutes, 2. Salt and Spices includes Salt, Spices and Edible Oils, 3. Vegetables and Fruits includes Vegetables, Fruits (Fresh) and Fruits (Dry), 4. Other Items includes Beverages, Refreshment, Pan, Tobacco and Intoxicants, 5. Rent and Taxes includes Rent, Taxes and Cesses, 6. Medical Expenses includes Medical (Institutional) Medical (Non-Institutional), 7. All the figures are in percentage.

"Among the many vulnerable sections in India, one of the most neglected and living in pitiable conditions is the population in slum areas of urban India"
Photograph by Mr. Juan Pedro Schmid

Table 3 illustrates 11 income categories across which the number of households and their average expenditures on food and non-food items are tabulated. The table also shows that there were 59 (30%) of the households earning Rs.51-75 per day. They are spending on average Rs.50.62 per day on food and Rs.23.51 on non-food items. While average size of households was 4.14, the average consumer unit in this category was 3.43. As the table shows, average consumption by each consumer unit was Rs.14.76. The maximum average expenditure on non-food items was in the income category Rs.400 & above and on food items in the category Rs.301-400 per day, where the average food expenditure was Rs.100.99 per day, with average household size at 7 and average consumer units at 6.36. Maximum consumption by each consumer unit lies in the income category Rs.400 & above and was Rs.17.07 per day.

Table 3: Distribution of Households by Income and Expenditure

S. No.	Income Category (Rs.)	No. of Households	Average Expenditure on Food (Rs.)	Average Expenditure on Non- Food (Rs.)	Average Size of Households	Average Consumer Unit	AFC* by each Consumer Unit (Rs.)
1.	0-15	4	4.82	4.48	1.25	1.00	4.82
2.	16-50	12	45.33	17.28	3.67	2.84	15.96
3.	51-75	59	50.62	23.51	4.14	3.43	14.76
4.	76-100	25	71.68	32.47	5.44	4.41	16.26
5.	101-125	28	67.66	29.72	5.61	4.67	14.50
6.	126-150	15	72.02	32.18	4.93	4.26	16.90
7.	151-200	26	68.03	30.93	5.77	4.86	14.16
8.	201-250	10	74.74	33.86	5.80	5.08	14.72
9.	251-300	5	96.05	37.20	6.80	5.88	16.33
10.	301-400	6	100.99	52.84	7.00	6.36	15.89
11.	400+	6	97.76	66.21	6.00	5.73	17.07
Total		196					

Note: *Average Food Consumption.
****Rs. stands for Rupees**

The estimate of individuals below the poverty line[1] requires the calculation of the consumption expenditure for each consumer unit. We have obtained the desired estimates by first finding out the average size of the household for each income category and then converting it into average consumer units per household for different age and sex categories. Table 4 presents the distribution of survey population by their expenditure on food on the basis of consumer unit. From the data we found that there were 94 households which were spending less than Rs.15.04 on food. These households were identified as below the poverty line.

Table 4: Distribution of Households by their Expenditure on Food on the basis of Consumer Unit

S. No.	Per consumer unit expenditure on food (Rs.)	No. of Households	BPL/ APL
1.	0.00-4.99	5	! BPL !
2.	5.00-9.99	38	
3.	10.00-15.04	51	
4.	15.05-16.99	26	! ! ! ! APL ! ! !
5.	17.00-19.99	22	
6.	20.00-21.99	14	
7.	22.00-25.99	10	
8.	26.00-29.99	13	
9.	30.00-39.99	10	
10.	40.00-49.99	5	
11.	50.00+	2	
Total		196	

We found that, based on the poverty line, 94 (48%) of the households and almost 556 out of 980 (57%) individuals we surveyed, were poor. The age structure of the survey population who were below the poverty line shows that out of the total survey population, more than 50% of the male population were in the poor category. Consequently, the proportion of the poor male population in the working age group (15-59) was 51.16% of the total male population. If we compare the ratio with total population of 601 males and 379 females in all the categories, it shows that 55.74% (335/601) males and 58.31% (221/379) females were below the poverty line. Thus we find higher poverty among females than males. This is likely due to low employment and low literacy among them.

72.34 % of the households family size for the survey population was 5-9 (the average family size is 5). Approximately 25.53% of the households had 0-4 family members. This data indicates that the poorest households have the largest family size, a predictable outcome as shown in most poor households worldwide.

The distribution of households below the poverty line on the basis of food expenditure shows that the maximum number of households fall into the category of Rs.40-59 per day on food expenditures. The average size of households in the category below the poverty level is 5.77. The highest expenditure households averaged a family-size approaching 9 members per household.

We noted that out of the total households below the poverty line, there were 23.40% which resided in those urban slums for approximately 10-14 years. Those families that resided there 4-9 years were 21.28% of the total households. The percentage was 20.21 among those residing in the slums for the last 20-29 years. There were 8.51% households out of total BPL households that did not migrate from other places but were born in Delhi itself. The data suggests that the length of stay in the city did not help the households in improving their economic condition.

Table 5: Distribution of Below Poverty Line Households on the Basis of Year of Migration

S. No.	Duration of Stay	No. of Households	% with total
1.	Less than 3 Year	6	6.38
2.	4 @ 9	20	21.28
3.	10 @ 14	22	23.40
4.	15 @ 19	14	14.89
5.	20 @ 29	19	20.21
6.	30 @ 39	4	4.26
7.	40 @ 49	1	1.06
8.	By Birth	8	8.51
Total		94	100.00

Conclusion

The survey of the slum dwellers in Delhi yielded several interesting findings. It shows that males are the predominant population among the city's migrant population. The level of education is abysmally low among males and even lower among females. Females are put in a particularly disadvantageous position in terms of their economic status, as we found that the unemployment rate for men (15 years and over) was only 21.85%, but for women was as high as 91.40%. Most of the slum population was mainly employed in the informal sector or were self-employed. Every household with an average size of 5 family members had an average of 1.71 employed persons. The highest mean income for a self employed tea-shop owner was Rs.155.51 per day. Those who were employed as auto rickshaw drivers had the second highest mean income of Rs.87.48 per day. Petty traders (eggs seller, fish seller, football seller, maize seller, etc.) earned the lowest mean income out of all workers, Rs.61.49 per day. We found that, based on the poverty line of Rs.15.04 per capita per day food expenditure, 94 (48%) of the households with 57% of the survey population were below the poverty line. Analysis of the below poverty line population revealed that these households also had the largest of family member number. The majority of below-the-poverty-line households migrated from two states namely Bihar and U.P., whereas only 48.36% of migrants from Bihar were below the poverty line, the percentage was as high as 67.85% for migrants from U.P. and 83.3% from M.P. The data however showed that the duration of stay after migration did not correlate with the economic status of the slum households. These findings emphasize the need for an employment generation policy among the urban slum dwellers, e.g. different direct poverty alleviation programmes especially in the short term. There is also a need for policy packages for improving education and training and creating opportunities for the urban poor, spread over longer periods so that they too can enter into more productive employment.

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Footnotes

[1] We have used Sundaram's poverty estimates, which are Rs.335.46 and Rs.451.19 for rural and urban India respectively for the year 1999-00

HOPE VI:
A Study of Housing and Neighborhood Satisfaction

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Abstract

How satisfied are residents with HUD's HOPE VI development? Despite the billions of dollars spent, very little is known about HOPE VI residential satisfaction. Residents stated that when compared to their previous housing and neighborhood, they have greater satisfaction with the HOPE VI development. The majority of residents surveyed stated that when compared to their previous environment, they have greater satisfaction with HOPE VI's housing and neighborhood. Residents expressed satisfaction with neighborhood schools, places of worship, public transportation, childcare, medical services, employment, housing, street lighting, cleanliness of area, adult and child recreation, location, and safety of neighborhood. These attitudes were consistent for both public housing and non-public housing residents. Residents did have concerns with adult and child recreational opportunities, with nearly half showing disapproval of these amenities.

HOPE VI Park DuValle Revitalization Project

Introduction

This paper evaluates resident's satisfaction with HOPE VI's Park DuValle Revitalization Project, Louisville, Kentucky. The HOPE VI program is not another "brick and mortar" project; it is new and different because it involves physical and social planning to improve both residence and neighborhood. The physical planning portion of Louisville's Park DuValle HOPE VI Program involves: demolishing a existing public housing community of 1,116 families; building a New Urbanism Community of 1,273 families; relocating original public housing residents back into their neighborhood as both renters and homeowners; and attracting mixed-income non-public housing residents into the original neighborhood as both renters and homeowners.

The social planning portion involves providing public housing residents the opportunity to receive self-sufficiency services when they move to HOPE VI replacement units, choose Section 8 housing, or choose traditional public housing. Services include but are not limited to case management, employment and career training, computer training, GED training, youth activities, childcare, family health services, and health insurance for children.

The importance of doing such a study is critical because of the enormous potential costs and/or benefits to: human capital; for research, theory, and public housing policy; and a local economic development tool. The central questions addressed are: is HOPE VI achieving its stated objectives; and what is the impact of the HOPE VI environment on residential satisfaction.

Narrative History of HOPE VI

In 1989, the U.S. Congress, in the Department of Housing and Urban Development Reform Act, established the "National Commission on Severely Distressed Public Housing" to study distressed public housing and make recommendations on how to better the situation by the year 2000. In 1992, the National Commission on Severely Distressed

Public Housing completed its study, citing six percent (6%) of public housing (approximately 86,000 units) as uninhabitable (HUD, 2000).

Congress crafted legislation they thought would overhaul and "save public housing". Senator Mikulski, Chairwoman of the Appropriations Housing and Urban Development Subcommittee, introduced into fiscal year 1993 appropriations, $300 million for the funding of a public housing revitalization program that would demolish uninhabitable public housing, replacing them with renovated and new human scaled units, and providing social services to residents (Twohey, 2000, pp. 1279). The HOPE VI program proposed to demolish 115,000 public units, replacing them with 60,000 new or rehabilitated units, a shortfall of over 55,000 public housing units. The legislation for the Urban Revitalization Demonstration (URD) program was passed by Congress, has had annual appropriations until 2004 F.Y., and has become known as "Homeownership and Opportunity for People Everywhere" (HOPE VI), a program creating mixed-income communities of hope. The HOPE VI program has five main objectives: (1) change the physical shape of public housing; (2) reduce concentrations of poverty; (3) provide support services to public housing residents; (4) maintain high standards of personal responsibility; and (5) form private/public partnerships for project completion.

Measurers of Residential Satisfaction

The measurement and operationalization of "residential satisfaction" is one of the goals of this study. Rosenbaum's (1995) well-known study of residential satisfaction, the Gautreaux study, found that public housing residents preferred living in the suburbs than in inner city housing projects. It was also found that the closer relatives and friends are to the new housing, the more residential satisfaction will improve (Galster and Hesser, 1981; Hourihan, 1984). Kinsey and Lane (1983) contend that the amount of space of a dwelling unit is directly related to residential satisfaction. Hanna and Lindmood (1979) state that the number of rooms, size of home, inside and outside appearances, amount of storage, and utility costs were directly related to residential satisfaction.

Rainwater (1966) argues that housing standards and satisfaction vary by social class with the poor showing a significant concern with crime. Galster believes that the level of satisfaction a resident expresses on a survey is related to the apartment or house meeting expectations (Galster, 1985, 1987; Galster and Hesser, 1981). Galster (1987) contends that the elderly will experience greater satisfaction with their homes than younger homeowners. And homeowners expressed greater satisfaction than those living in apartments (Varady, Walker, and Wang, 2001; William Rohe and Michael Stegman, 1994, Gilderbloom and Appelbaum, 1988). Varady contends that the following factors explain variations in housing satisfaction thru direct or indirect effects: relocation counseling; perceived neighborhood safety; satisfaction with the housing search; location; median neighborhood housing values; living in a house; high rent burden; welfare assistance; being unemployed (inverse); being divorced; being married (inverse); and age (inverse)(Varady, Walker, and Wang, 2001, pp. 1299). Therefore efforts to treat "housing satisfaction" as a simple dependent variable are a mistake (Birks and Southan, 1992, pp. 304).

Neighborhood satisfaction is also a complex and multidimensional process involving location and housing characteristics, safety, proximity of family and friends, and the emotional well being of the residents themselves (Galster and Hesser, 1981). Fried (1982) contends that characteristics such as age, education, income, social class, and household density have a direct correlation with neighborhood satisfaction.

Scattered-Site Public Housing and Residential Satisfaction

David Varardy and Wolfgang Preiser use three quantifiers to define the term "scattered-site housing": (1) the number of units at the site, which may range from two to a few hundred; (2) structures, usually ranging from garden apartments, duplexes, townhouses, or single-family detached houses; and, 3) deconcentration of units away from high density, low-income minority populations (1998, pp. 190). Varardy and Preiser's definition of scattered-site housing, and the HOPE VI program, are one and the same.

In 1987 Francescato, Weidemann, and Anderson, completed one of the most sophisticated and largest surveys to date on 'residential satisfaction in HUD assisted housing'. The survey covered 37 HUD housing developments including 10 public housing projects. "The authors found no relationship between satisfaction on the one hand and project height, size, and density on the other. The implication is that residents of scattered-site housing are not necessarily more satisfied than are residents of traditional family developments" (Varady and Preiser, 1998, pp. 190).

Burby and Rohe (1989) argue that the deconcentration of public housing increases residential satisfaction and reduces the fear of crime. Research on the Gautreaux program in Chicago (Rosenbaum and Popkin, 1990; Rosenbaum 1993, 1995) proves that individuals in public housing benefit from scattered-site housing through better employment for adults and better educational opportunities for children. The results of the Gautreaux program also disprove the "culture of poverty model", while providing legitimacy to the "geography of opportunity model" (Galster and Killen, 1995). Fisher (1991), Varady and Preiser (1998) contend that public housing

residents who move to the suburbs in scattered-site housing are more satisfied than those residents who decided to remain in public housing.

Scattered-site housing is the model for the "geography of opportunity hypothesis". Advocates argue that public housing residents living in scattered-site housing have higher levels of residential satisfaction; access to better schools and jobs; lessened fear of crime; and the cultural enrichment of exposure to more diverse populations (Burby and Rohe, 1989; Rosenbaum and Popkin, 1991; Rosenbaum, 1995; Rosenbaum and Harris, 2001; Rosenbaum and Popkin, 1990; Rosenbaum, 1991; Kingsley and Tatian, 1997; Briggs, 1997, 1998; Briggs, Xavier, Darden, and Aidala, 1999).

David Varady and Wolfgang Preiser's study of housing satisfaction in public housing units found that approximately three-fourths of the individuals living in scattered-site single-family detached homes, clustered scattered-site housing, and traditional public housing, were satisfied with their homes (1998, pp. 201). Varady and Preiser argue that "home satisfaction" is influenced by maintenance of the unit, the surrounding neighborhood, crime, neighborhood social interaction, resident involvement in decision making, and the quality of the home (1998, pp. 203). Research has shown that "residential satisfaction" is based more on environmental influences than the residence itself.

A Narrative History of Park Duvalle

African Americans first occupied the area in Western Louisville that is now known as "Park DuValle" in the 1880's. The area was called "Little Africa" and was the black section of Parkland, a Louisville suburb. In the late 1940s "Little Africa" was razed by urban renewal and a public housing project was built in 1952, named after educator and noted poet Joseph Cotter Sr. Another public-housing project, Lang Homes, was built in the same area a few years later in 1958 (Jones, 1999).

Remodeled house in Park Duvalle

Cotter and Lang Homes established an enormous area of low-income housing for families that were both socially and physically isolated from the rest of the Park DuValle neighborhood. Cotter Homes had 620 apartments in 55 identically designed buildings on a 34-acre site. Lang Homes consisted of 496 apartments in 63 identically designed buildings on a 41-acre site. The design and size of the public housing complex made it impossible to blend with the existing neighborhood, therefore, they became their own neighborhood of low-income residents.

HOPE VI Objectives—Park DuValle

The first objective of HOPE VI (change the physical shape of public housing) was accomplished at Park DuValle by demolishing existing public housing and building a New Urbanism community. The flat roof, concrete structural frame, non-load bearing concrete block wall design of public housing was transformed into human scale, wood framed, brick veneer walls, gable roof townhouses and single family detached homes. The HOPE VI residential development is based on three architecture styles found in Louisville; Victorian, Colonial Revival, and Craftsman. New urbanism argues that traditional architectural styles need to be part of the development for continuity. The HOPE VI development has traditional housing elements including front porches, front and rear yards, narrow streets, alleys, and walkable neighborhoods. HOPE VI has changed the shape of public housing.

The second objective of HOPE VI (reduce concentrations of poverty) was accomplished by reducing residential unit count by approximately one half. Cotter Homes (public housing) averaged 17 dwelling units per acre. Lang Homes (public housing) averaged 12 dwelling units per acre, while Park DuValle's Oaks (phase I) averaged 8 dwelling units per acre and Park DuValle's "The Village" (phase II) averaged 7 dwelling units per acre (Housing Authority of Louisville, 1998). The yearly income for residents in Cotter and Lang Homes averaged $5,000/yr in 1994, while the mean income of the HOPE VI Park DuValle residents in 2001 averaged $26,134 (Brazley, 2002). This study found that the median household income for the Park DuValle community has increased, serious crime was reduced, the housing stock was significantly improved, housing units per acre were reduced, the value of property increased, the neighborhood became

livable again, and concentrations of poverty were reduced (Brazley, 2002).

The third objective of the HOPE VI program (provide residents with support services in the form of self-sufficiency programs) proposes to help families achieve and sustain self-sufficiency, encourage economic and community investment through employment, education, and human services initiatives.

The fourth objective of the HOPE VI program (maintain high standards of personal responsibility) began with President Clinton's "One strike and You're Out" policy, keeping drug dealers and other criminal activities out of public housing. The HOPE VI program has a screening criteria which residents must pass to live at Park DuValle. Park DuValle has some of the highest standards of personal responsibility requirements in the country; requiring criminal background checks, credit check, rental history check, employment/job training/family self-sufficiency, and housekeeping inspection checks.

The fifth objective of HOPE VI (establish public/private partnerships for program completion), began with HUD's initial $51 million grant to the Park DuValle project and was leveraged into $180 million of public-private funding. The public-private partnerships include HUD, the City of Louisville, Housing Authority of Louisville, Community Builders Inc., University of Louisville, The Housing Partnership Inc., Louisville Real Estate Development Co., Inc., PNC Bank, and National City Community Development Corporation. Thus the Park DuValle project has completed or is in the process of completing all of the major objectives of the HOPE VI program.

Methodology

The survey instrument used in this study was a combination of HUD's HOPE VI Interim Assessment Neighborhood Resident Survey with additional questions added by the authors to measure residential and neighborhood satisfaction. The survey uses housing, neighborhood, and location characteristics, residential attachment and safety characteristics, and open-ended questions to decide if the satisfaction of the HOPE VI resident was enhanced.

The total Park DuValle population (Phase II), of three hundred twenty (320) households were contacted with one hundred seventy-seven surveys returned. Two of the surveys were removed for lack of completeness, leaving one hundred seventy-five surveys or 55% of the sample. The sample was divided into two groups, one group being public housing residents and the second group composed of non-public housing residents. Public housing residents had a total population of 69 families; we surveyed 86% of that population (59 families). One hundred and sixteen families of the non-public housing group were surveyed or 46% of that total population.

Analysis of Data

The surveys were collected, coded, and put into a statistical computer program. A frequency distribution of the survey was generated using criterion variables, location variables, background characteristics variables, safety variables, and residential attachment variables to interpret the data. The frequency distributions of selected variables are shown in Tables 1 though 6.

The frequencies of demographics are shown in Table 1. The demographics of the Park DuValle community reveal that the majority of "head-of-households" are African American females with a twelfth grade or higher education, two or more persons in the home, not in the public housing assistance program, have fulltime employment, own an automobile, and have a single martial status. The individual demographics of both the public housing sector and non-public housing sector are similar with a few exceptions. The majority of public housing and non-public housing families have single African American female head-of-households employed fulltime and owning a car. Differences appear in the public housing sector which show more individuals per households and less formal education than the non-public housing sector. Yearly income for the public housing group ranged from $7,000 to $36,000 with median income equaling $14,400 per year. The yearly income for the non-public housing group ranged from $6,000 to $70,000, with median income equaling $30,000 per year.

Census data for the year 1999 on median family income at the tract level was $24,773. But 1990 census data at the tract level reveals family median income to be $4,999, and family mean income to be $6,998. Abt Associates Inc. Interim Memo on HOPE VI (Buron, Handle, and Patrabansh, 2001) states that at the time of relocation, Cotter and Lang public housing residents had median household incomes of $5,016 per year. Statistics reveal that for the median income public housing residents in the Park DuValle neighborhood, income increased over $9,000 in less than four years from $5,016 to $14,400 between 1996 and 2000. The HOPE VI program appears to attract higher income families into the area.

Table 2 measures the Park DuValle residents' level of satisfaction with various elements of their new neighborhood. The majority of residents were satisfied with the location of the following neighborhood elements: public transportation, schools, childcare, churches, employment, and medical services. Residents as a group were dissatisfied with shopping and entertainment. Public housing and non-public housing

Table I. Frequencies of Democraphics

			Public Housing Resident				Total population	
			No		Yes			
			Count	Col %	Count	Col %	Count	Col %
Male			14	12.1%	9	15.3%	23	13.1%
Female			102	87.9%	50	84.7%	152	86.9%
Other race			2	1.7%	0		2	1.1%
African American			114	98.3%	59	100.0%	173	98.9%
Education level	Less than high school		4	3.4%	7	11.9%	11	6.3%
	High school graduate		28	24.1%	33	55.9%	61	34.9%
	1-2 year community college		28	24.1%	14	23.7%	42	24.0%
	College graduate		56	48.3%	5	8.5%	61	34.9%
Household size		1	10	8.6%	6	10.2%	16	9.1%
		2	57	49.1%	4	6.8%	61	34.9%
		3	29	25.0%	15	25.4%	44	25.1%
		4	15	12.9%	7	11.9%	22	12.6%
		5	3	2.6%	1	1.7%	4	2.3%
		6	2	1.7%	0		2	1.1%
		8	0	0.0%	1	1.7%	1	0.6%
Employment status	Fulltime		104	89.7%	49	83.1%	153	87.4%
	Part-time		8	6.9%	4	6.8%	12	6.9%
	Unemployed		4	3.4%	6	10.2%	10	5.7%
Do you own a car	Yes		67	57.8%	33	55.9%	100	57.1%
	No		49	42.2%	26	44.1%	75	42.9%
Marital status	Single		67	54.8%	39	69.6%	106	60.6%
	Married		20	17.9%	6	10.7%	26	14.9%
	Divorced		22	19.0%	8	14.3%	30	17.1%
	Separated		5	6.0%	3	5.1%	8	4.6%
	Widowed		1	1.2%	1	1.8%	2	1.1%
	No Response		1	1.2%	2	3.6%	3	1.7%
Median income				$30,000		$14,400		$24,741
Mean income				$32,606		$16,321		$24,115

No. of public housing residents=59 No. of non-public housing residents=116 Total N=175

residents differ significantly in their assessment of their satisfaction with schools and medical services. Table 2 shows that non-public housing residents have a greater level of satisfaction with schools than public housing residents. On the other hand non-public housing residents are more dissatisfied with medical services than public housing residents.

Table 3 measures the Park DuValle residents' satisfaction with their present housing as compared to their previous housing. As shown earlier, home satisfaction is based more on environmental influences than the residence itself. All groups of residents (total population, public housing, and non-public housing) were satisfied with Park DuValle's housing, street lighting, sidewalks, cleanliness, child recreation, adult recreation, and neighborhood in general. While the majority were generally satisfied, it should be noted that 47% of the residents were dissatisfied with adult recreation and 41% dissatisfied with child recreation.

Table 4 asks residents to compare their Park DuValle neighborhood to their previous neighborhood. 70% of the residents indicated that their new HOPE VI neighborhood, Park DuValle was a much better place to live.

Table 5 measures residents' level of satisfaction with the locations of neighbors, relatives, and friends in relationship to their Park DuValle neighborhood. This Table also measures the residents' overall level of satisfaction with life in general. All residents were satisfied with the locations of: neighbors, nearness to relatives, friends in neighborhood, relatives in neighborhood. and life in general.

Table 6 measures residents' level of satisfaction with neighborhood safety. Again, all residents were satisfied with: safety for children, visual access to children, safety at home, safety in neighborhood, police protection, and traffic hazards.

Table 2. Satisfaction of Neighborhood

		Public Housing Resident				Total Population	
Satisfaction with the		No		Yes			
location of		Count	Col %	Count	Col %	Count	Col %
Shopping	Very dissatisfied	44	37.9%	20	33.9%	64	36.6%
	Dissatisfied	35	30.2%	19	32.2%	54	30.9%
	Satisfied	35	30.2%	17	28.8%	52	29.7%
	Very Satisfied	2	1.7%	3	5.1%	5	2.9%
Public transportation	Very dissatisfied	12	10.3%	5	8.5%	17	9.7%
	Dissatisfied	13	11.2%	5	8.5%	18	10.3%
	Satisfied	69	59.5%	34	57.6%	103	58.9%
	Very Satisfied	22	19.0%	15	25.4%	37	21.1%
Schools *	Very dissatisfied	5	4.3%	7	11.9%	12	6.9%
	Dissatisfied	6	5.2%	7	11.9%	13	7.4%
	Satisfied	69	59.5%	36	61.0%	105	60.0%
	Very Satisfied	36	31.0%	9	15.3%	45	25.7%
Child care	Very dissatisfied	5	4.3%	5	8.5%	10	5.7%
	Dissatisfied	15	12.9%	6	10.2%	21	12.0%
	Satisfied	75	64.7%	43	72.9%	118	67.4%
	Very Satisfied	21	18.1%	5	8.5%	26	14.9%
Churches	Very dissatisfied	4	3.4%	3	5.1%	7	4.0%
	Dissatisfied	1	0.9%	4	6.8%	5	2.9%
	Satisfied	75	64.7%	36	61.0%	111	63.4%
	Very Satisfied	36	31.0%	16	27.1%	52	29.7%
Employment	Very dissatisfied	17	14.7%	3	5.1%	20	11.4%
	Dissatisfied	27	23.3%	10	16.9%	37	21.1%
	Satisfied	57	49.1%	40	67.8%	97	55.4%
	Very Satisfied	15	12.9%	6	10.2%	21	12.0%
Medical services *	Very dissatisfied	9	7.8%	2	3.4%	11	6.3%
	Dissatisfied	25	21.6%	7	11.9%	32	18.3%
	Satisfied	70	60.3%	36	61.0%	106	60.6%
	Very Satisfied	12	10.3%	14	23.7%	26	14.9%
Entertainment	Very dissatisfied	26	22.4%	13	22.0%	39	22.3%
	Dissatisfied	44	37.9%	23	39.0%	67	38.3%
	Satisfied	40	34.5%	19	32.2%	59	33.7%
	Very Satisfied	6	5.2%	4	6.8%	10	5.7%

No. of public housing residents=59 No. of non-public housing residents=116 Total N=175
* statistically significant at the .o5 level

Table 3. Satisfaction of Housing

Satisfaction with present housing		Public Housing Resident				Total Population	
		No		Yes			
		Count	Col %	Count	Col %	Count	Col %
Housing	Very dissatisfied	9	7.8%	5	8.5%	14	8.0%
	Dissatisfied	5	4.3%	2	3.4%	7	4.0%
	Satisfied	68	58.6%	31	52.5%	99	56.6%
	Very Satisfied	34	29.3%	21	35.6%	55	31.4%
Street lighting	Very dissatisfied	2	1.7%	5	8.5%	7	4.0%
	Dissatisfied	10	8.6%	1	1.7%	11	6.3%
	Satisfied	69	59.5%	33	55.9%	102	58.3%
	Very Satisfied	35	30.2%	20	33.9%	55	31.4%
Sidewalks	Very dissatisfied	1	0.9%	5	8.5%	6	3.4%
	Dissatisfied	10	8.6%	2	3.4%	12	6.9%
	Satisfied	62	53.4%	32	54.2%	94	53.7%
	Very Satisfied	43	37.1%	20	33.9%	63	36.0%
Cleanliness	Very dissatisfied	1	0.9%	5	8.5%	6	3.4%
	Dissatisfied	8	6.9%	3	5.1%	11	6.3%
	Satisfied	59	50.9%	24	40.7%	83	47.4%
	Very Satisfied	48	41.4%	27	45.8%	75	42.9%
Child recreation	Very dissatisfied	10	8.6%	12	20.3%	22	12.6%
	Dissatisfied	38	32.8%	12	20.3%	50	28.6%
	Satisfied	49	42.2%	22	37.3%	71	40.6%
	Very Satisfied	19	16.4%	13	22.0%	32	18.3%
Adult recreation	Very dissatisfied	14	12.1%	9	15.3%	23	13.1%
	Dissatisfied	43	37.1%	17	28.8%	60	34.3%
	Satisfied	46	39.7%	25	42.4%	71	40.6%
	Very Satisfied	13	11.2%	8	13.6%	21	12.0%
Neighborhood in general	Very dissatisfied	1	0.9%	3	5.1%	4	2.3%
	Dissatisfied	9	7.8%	8	13.6%	17	9.7%
	Satisfied	80	69.0%	31	52.5%	111	63.4%
	Very Satisfied	26	22.4%	17	28.8%	43	24.6%

No. of public housing residents=59 No. of non-public housing residents=116 Total N=175

Table 4. Comparison to Respondents' Previous Neighborhood

New neighborhood compared to old ones	Public Housing Resident				Total Population	
	No		Yes			
	Count	Col %	Count	Col %	Count	Col %
Much better place	63	54.3%	45	76.3%	108	61.7%
A little better	26	22.4%	8	13.6%	34	19.4%
About the same	21	18.1%	3	5.1%	24	13.7%
A little worse	5	4.3%	3	5.1%	8	4.6%
Much worse	1	0.9%			1	0.6%

No. of public housing residents=59 No. of non-public housing residents=116 Total N=175

Table 5. Satisfaction of Location

		Public Housing Resident				Total Population	
Satisfaction with location of		No		Yes			
		Count	Col %	Count	Col %	Count	Col %
Neighbors	Very dissatisfied			3	5.1%	3	1.7%
	Dissatisfied	15	12.9%	6	10.2%	21	12.0%
	Satisfied	80	69.0%	36	61.0%	116	66.3%
	Very Satisfied	21	18.1%	14	23.7%	35	20.0%
Nearness to relatives	Very dissatisfied	2	1.7%	3	5.1%	5	2.9%
	Dissatisfied	19	16.4%	8	13.6%	27	15.4%
	Satisfied	64	55.2%	39	66.1%	103	58.9%
	Very Satisfied	31	26.7%	9	15.3%	40	22.9%
Friends in neighborhood	Very dissatisfied	3	2.6%	2	3.4%	5	2.9%
	Dissatisfied	12	10.3%	8	13.6%	20	11.4%
	Satisfied	87	75.0%	42	71.2%	129	73.7%
	Very Satisfied	14	12.1%	7	11.9%	21	12.0%
Relatives in neighborhood	Very dissatisfied	5	4.3%	3	5.1%	8	4.6%
	Dissatisfied	20	17.2%	10	16.9%	30	17.1%
	Satisfied	71	61.2%	38	64.4%	109	62.3%
	Very Satisfied	20	17.2%	8	13.6%	28	16.0%
Life in general	Very dissatisfied	3	258.6%	4	678.0%	7	4.0%
	Dissatisfied	7	603.4%	1	169.5%	8	4.6%
	Satisfied	77	6637.9%	33	5593.2%	110	62.9%
	Very Satisfied	29	2500.0%	21	3559.3%	50	28.6%

No. of public housing residents=59 No. of non-public housing residents=116 Total N=175

New housing in the Park DuValle neighborood.

Table 6. Satisfaction of Safety

		Public Housing Resident				Total Population	
Satisfaction with		No		Yes			
		Count	Col %	Count	Col %	Count	Col %
Safety for children	Very dissatisfied	4	3.4%	4	6.8%	8	4.6%
	Dissatisfied	19	16.4%	8	13.6%	27	15.4%
	Satisfied	73	62.9%	33	55.9%	106	60.6%
	Very Satisfied	20	17.2%	14	23.7%	34	19.4%
Visual access to kids	Very dissatisfied	6	5.2%	4	6.8%	10	5.7%
	Dissatisfied	19	16.4%	6	10.2%	25	14.3%
	Satisfied	74	63.8%	38	64.4%	112	64.0%
	Very Satisfied	17	14.7%	11	18.6%	28	16.0%
Safety at home	Very dissatisfied	3	2.6%	3	5.1%	6	3.4%
	Dissatisfied	6	5.2%	5	8.5%	11	6.3%
	Satisfied	75	64.7%	31	52.5%	106	60.6%
	Very Satisfied	32	27.6%	20	33.9%	52	29.7%
Safety in neighborhood	Very dissatisfied	2	1.7%	2	3.4%	4	2.3%
	Dissatisfied	14	12.1%	3	5.1%	17	9.7%
	Satisfied	73	62.9%	41	69.5%	114	65.1%
	Very Satisfied	27	23.3%	13	22.0%	40	22.9%
Police protection	Very dissatisfied	5	4.3%	4	6.8%	9	5.1%
	Dissatisfied	12	10.3%	7	11.9%	19	10.9%
	Satisfied	68	58.6%	36	61.0%	104	59.4%
	Very Satisfied	31	26.7%	12	20.3%	43	24.6%
Traffic hazards	Very dissatisfied	6	5.2%	5	8.5%	11	6.3%
	Dissatisfied	21	18.1%	9	15.3%	30	17.1%
	Satisfied	68	58.6%	34	57.6%	102	58.3%
	Very Satisfied	21	18.1%	11	18.6%	32	18.3%

No. of public housing residents=59 No. of non-public housing residents=116 Total N=175

Summary

Park DuValle's public housing was in a state of decline until the HOPE VI intervention. The neighborhood had high crime, high density, housing stock in disrepair, and declining family incomes. The Cotter/Lang population was one of the youngest and poorest groups of families when compared to other public housing authorities around the country. Before HOPE VI, the Park DuValle community was known as the most crime ridden and dangerous neighborhood in Louisville.

The HOPE VI Park DuValle Revitalization has sparked a surge in middle-class African American homes. Eighty percent of the heads-of-households have fulltime employment and a median yearly household income of about $30,000. Most of these households are headed by single African American females. Approximately one hundred percent of the heads-of-household have at least the equivalent of a high school education and live with two or more children.

Initial reactions to HOPE VI have been positive. When surveyed, the majority of residents stated that they were satisfied with their Park DuValle neighborhood (schools, churches, public transportation, childcare, medical services, and employment). Residents were dissatisfied with shopping and entertainment in and around the neighborhood. The majority of residents were satisfied with their Park DuValle housing (housing, street lighting, sidewalks, cleanliness of area, neighborhood in general, and adult and child recreation).

Survey data reveals that residents think of Park DuValle as their home and express satisfaction with the location of HOPE VI and the safety of the Park DuValle neighborhood. Survey data of the first two phases of the Park DuValle Revitalization Project revealed that residents are satisfied with: housing, neighborhood, location, and safety. They are dissatisfied with shopping and entertainment. All in all, the majority (70 percent or greater) of residents of the Park Du-

Valle HOPE VI project were satisfied with their homes and neighborhoods.

Conclusion

HOPE VI, so far, appears to be accomplishing its objectives: changing the physical shape of housing; reducing concentrations of poverty; providing support services; establishing and maintaining high standards of community and personal responsibility; and forming partnerships. When residents compared their HOPE VI house and neighborhood to their previous residences, levels of satisfaction were generally higher in almost every area. These attitudes were consistent for both former public housing and non-public housing residents.

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The Centrality of Debt to Tropical Deforestation: Going Beyond Single Equation Models

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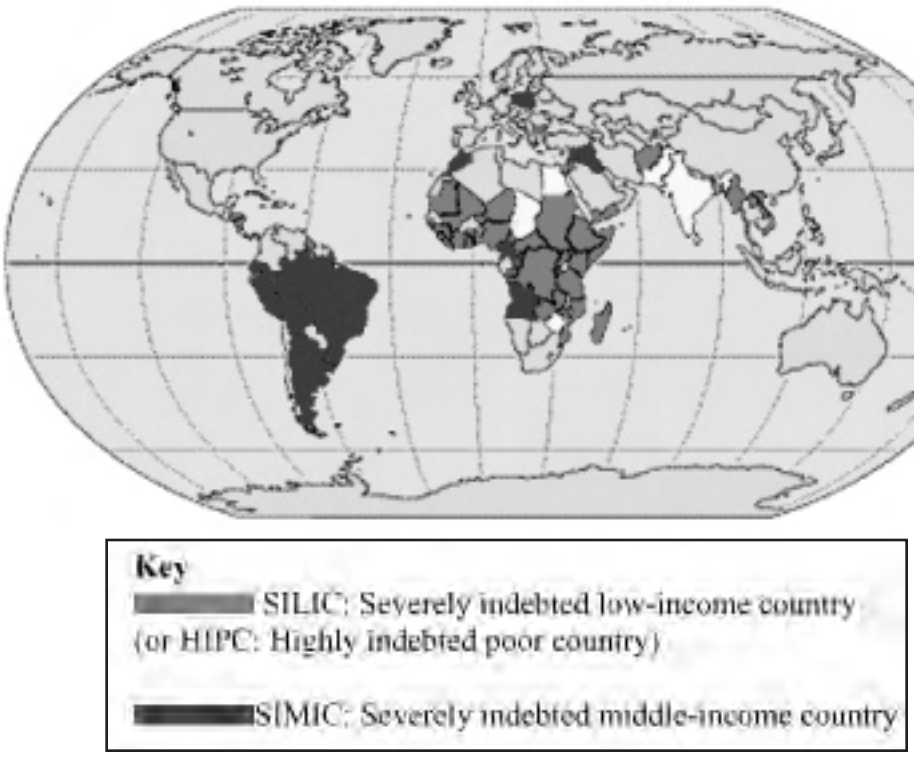
Overview and Purpose

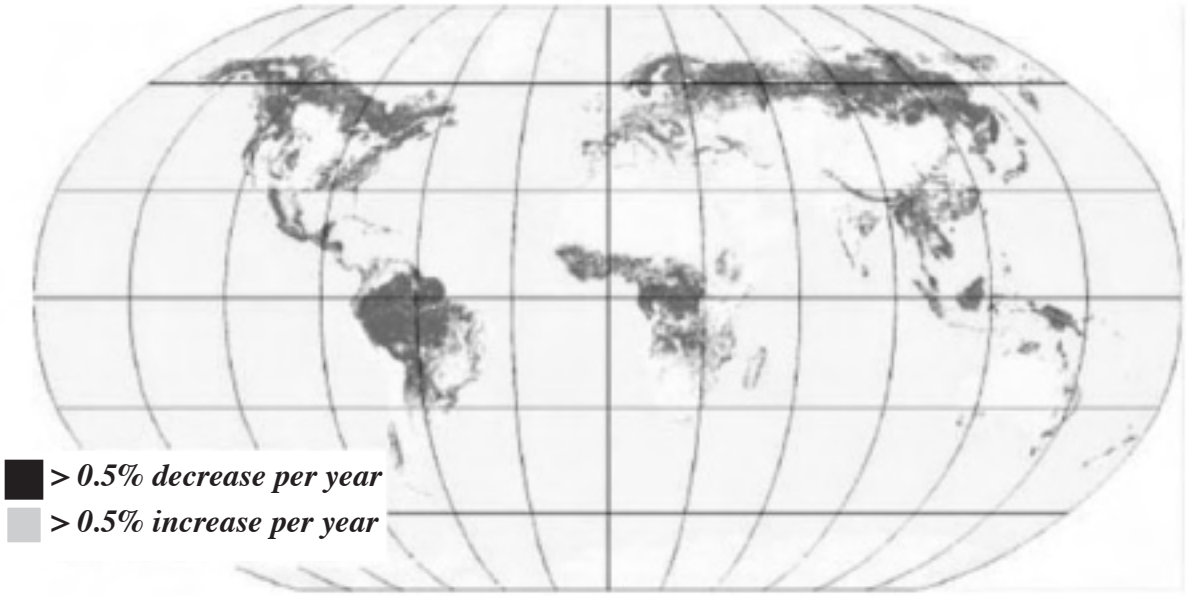
While it is generally recognized that the process of tropical deforestation is complex and does not occur in simple one-step fashion (Blaikie 1986; Deacon 1994), previous studies have failed to adequately reflect this complexity in that they have mainly employed single-stage methodological techniques to deal with the multi-layered nature of deforestation. Thus, these studies have been limited by the problem of misspecification. Furthermore, a number of studies have failed to address the critical role of external macro-level factors in the process of deforestation. The purpose of this study is to provide us with better insights into the problem of deforestation, using a structural equation modeling approach that allows us to decompose the deforestation process in terms of direct, indirect, and total effects. It seeks to understand in particular the role of debt in the process of deforestation. This is especially significant because of its relevance to policy and planning initiatives that are directly or even remotely related to forest resource use. The critical role of debt and poverty in the process of deforestation cannot be an overstatement. This is readily apparent when we superimpose a map of World debt (see Illustration 1) on the Map of areas in the world experiencing rapid deforestation (see Illustration 2). Severally indebted low income (poor) and severally indebted moderate income countries particularly in Africa and South America are experiencing high rates of deforestation.

Illustration 1: Map of World Debt and Poverty



Source: World Bank Graphic: www.globalissues.org.
http:www.globalissues.org/TradeRelated/Debt/ExternalArticle

Illustration 2: Countries with high rates of net forest change



Forest Loss and Implications

According to the FAO's Forest Resource Assessment of 2000, the world's forests covered about 30 percent of the world's land area. In addition, 1.5 million hectares per year of natural forests were converted to forest plantations. As Table 1 shows, while there was a net increase in forests in the non-tropics, the tropics experienced a substantial decrease.

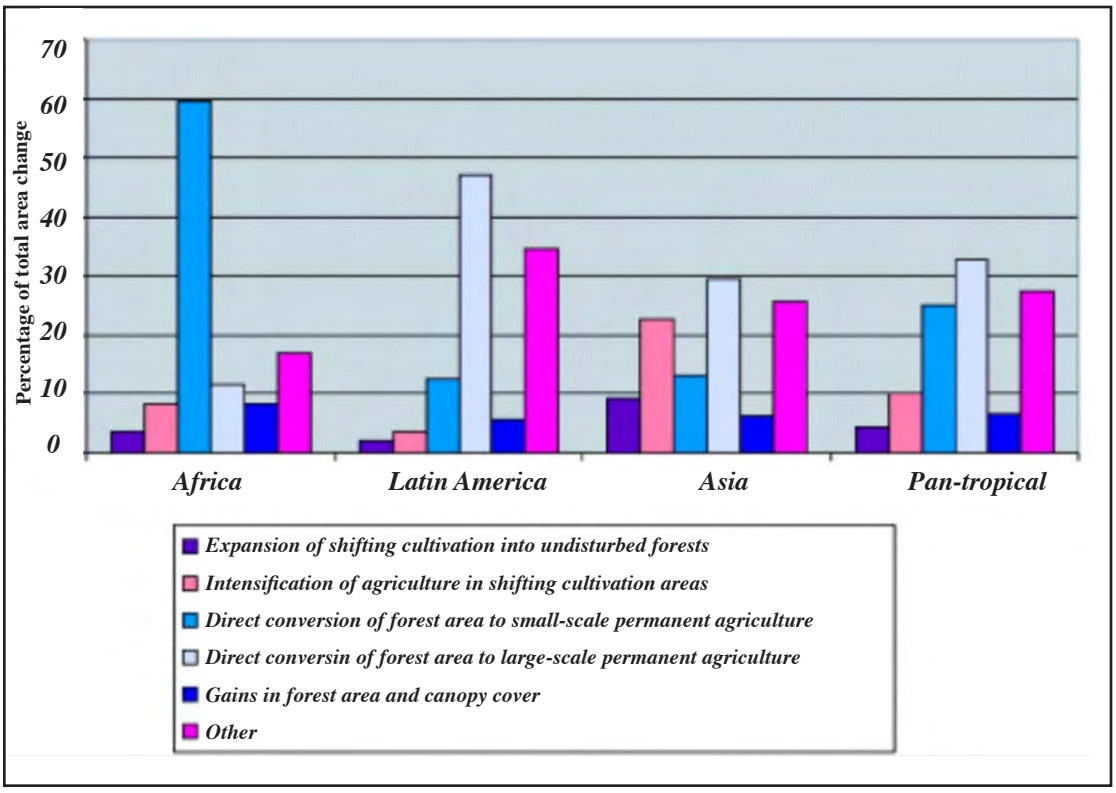
Table 1: Annual gross and net changes in forest area, 1990 to 2000 (million hectares per year)

Domain	Deforestation	Increase in forest area	Net change in forest area
Tropics	-14.2	+1.9	-12.3
Non-tropics	-0.4	+3.3	+2.9
World	-14.6	+5.2	-9.4

Source: FAQ Forest Resources Assessment, 2000

The continued loss of tropical forests, and their conversion to other uses is depicted in Figure 1. It is clear that a major factor in the process of deforestation is the direct conversion to small scale and large scale permanent agriculture.

Figure 1: Percentage of total area change by individual change processes at regional and pan-tropical Level, 1990-2000



Source: FAQ Forest Resources Assessment, 2000

The high rate of deforestation is of concern not only to the affected countries or regions, but to the world at large. The eradication of the Amazon Rainforest and Rainforests around the world are wreaking havoc on the earth's climate. The Amazon Rainforest for instance, acts like a giant "heat pump" that sends energy and moisture from the tropics into the colder high latitudes -it produces a climate in which we can live. The destruction of tropical forests leads not only to loss of bio-diversity but also displaces and destroys indigenous populations that inhabit the forests. Currently, only 200,000 indigenous people remain in the Brazilian rainforest, down from almost 9 million in 1500.

These factors and numerous others, make it imperative to carefully disentangle the deforestation problem in order to apply the appropriate policy measures toward a meaningful solution.

Illustration 3 Indigenous People Walking Through Recently Burnt Rainforest

Data Definition & Hypotheses

Data regarding forest resources are essentially from the FAO's Forest Resources Information System covering the 1981-90, 1990-2000 periods, which employed LANDSAT imagery as well as ground surveys (FAO 1993; 2000). Thus definitions related to deforestation and other related data are based on the FAO's definitions. Data related to debt are from the World Bank Debt Tables. The variables used and their names are Population Change (POP), Logging Intensity (LOGINT), IMF Credit Use (IMF), Total Debt (Debt), Industrialwood Production (INDUS), Cropland Change (CROP), Fuelwood Production (FUEL), and Deforestation (DEF). Deforestation is defined as an extent measure rather than as a relative measure in order to avoid classifying countries such as Brazil, Indonesia and Zaire as low deforestation countries because of their huge forest base. Thus, deforestation (DEF) is the average annual rate of deforested area in hectares covering the study period.

$$\text{Extent (Total Deforestation)} = \frac{1990\text{ha} - 2000\text{ha}}{\text{Ten Years}}$$

All of the other variables were also expressed in terms of total change. For the IMF variable, however, actual, rather than the change in IMF credit use was used because countries with large IMF credit would be more inclined to tailor their macro-economic policies in line with IMF/world bank conditions. The crucial issue is not the change (over time) in credit use but the use and size of the IMF credit itself.

Hypotheses

Based on a literature review, a positive relationship is expected among all of the variables. For instance, an increasing debt burden also makes it necessary for developing countries to exploit forest resources in order to meet debt obligations. In effect, countries experiencing debt problems engage in more commercial use of the forest (Guppy 1984; George 1988). The total effect of debt burden on deforestation is statistically positive. Population changes in tropical countries also show a statistically positive correlation with deforestation (Walker 1993). This is due in part to the high dependence on fuelwood use even among urban dwellers in developing countries. Positive economic change (GDP-ICP measure) as indicated by increments in the GDP is associated with higher industrialwood.

Estimation and Procedure

LISREL was used in the estimation of a linear structural model of deforestation. The model is specified by:

$$Y = \beta y + \Gamma x + \zeta$$

Where:

(beta) is an (m x m) matrix of structural coefficients representing effects of endogenous variables on other endogenous variables,

y is an (m x 1) matrix of endogenous variables

(gamma) is an (m x n) matrix of coefficients representing effects of exogenous variables on endogenous variables.

x is an (n x 1) matrix of exogenous variables

(zeta) is a matrix of disturbance terms.

As an initial diagnostic test, the model was first run as a fully-saturated model in which all possible paths connecting the various variables were present. This was developed from a set of correlation matrices. Theoretical/empirical and various fit indices were used to test the model. For comparison purposes, all coefficients are expressed in standardized solutions. The initial correlation matrix within the LISREL input statement is contained in Table 1. While firm conclusions cannot be made from mere correlations, the relationships are generally consistent with our expectations.

Table 3: Matrix of Correlation Coefficients for Variables Used in the Study

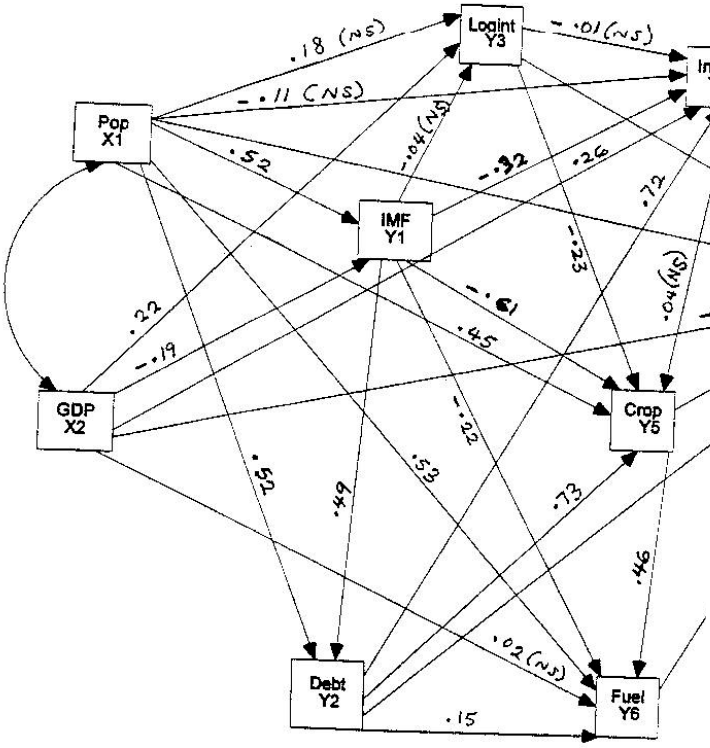
	POP	IMF	LOGINT	DEBT	INDUS	CROP	FUEL
DEF							
POP	1000						
IMF	456	1000					
LOGINT	189	-002	1000				
DEBT	769	677	130	1000			
INDUS	309	111	116	395	1000		
CROP	628	100	-031	611	329	1000	
FUEL	841	182	070	666	354	781	1000
DEF	718	370	-082	769	516	758	830 1000

Findings

The study reveals, as contained in Figure 1 and Table 2, that the debt burden of tropical countries compared to other variables is the most critical factor in the process of deforestation. In terms of direct/indirect, and total effects, debt shows a consistently positive correlation with industrialwood production, cropland expansion, fuelwood production, and deforestation. IMF credit use, contrary to theoretical arguments is negatively associated with cropland expansion, fuelwood production, and industrialwood production.

Although structural adjustment programs may theoretically boost export activities such as industrialwood and cash crop production, the opposite effect is suggested by this study. This is plausible when induced by IMF conditionalities. For example, a reduction in public expenditure on road construction and the removal of agricultural subsidies could serve as a disincentive to timber loggers and cash crop producers because of the difficulty in accessing forests and transporting wood and crops to the ports.

Figure 1: Final Model



Note: NS = N

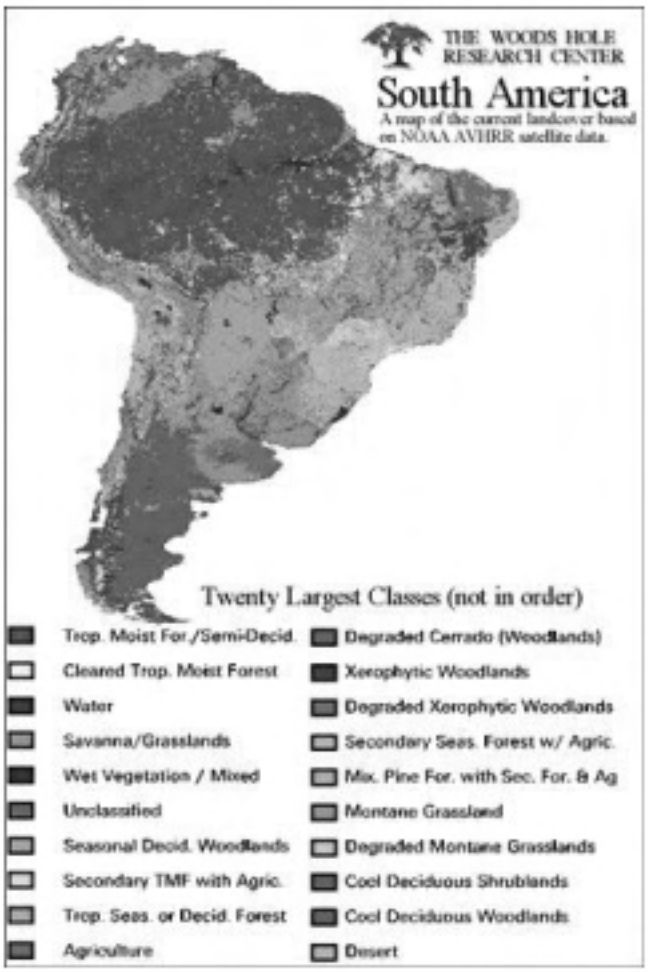


Illustration C: Map of Current Land Use in South America

Table 2 — Comparison of direct, indirect and total effects of final model (Results for 4 Variables only)

EFFECT OF:	ON	DIRECT	INDIRECT	TOTAL
Debt	indus	**Coefficient** 0.58	--	0.58
		Std. Error (0.16)		(0.16)
		t-value 3.59		3.59
	Crop	0.75	0.1	0.76
		(0.16)	(0.05)	(0.15)
		4.63	0.13	4.93
	Fuel	0.15	0.23	0.38
		(0.12)	(0.09)	(0.11)
		1.18	2.74	3.48
	Def	0.27	0.47	0.74
		(0.12)	(0.11	(0.13)
		2.23	4.12	5.69
Indus	Crop	0.01	--	0.01
		(0.09)		(0.09)
		0.13		0.13
	Fuel	0.03	0.01	0.04
		(0.06)	(0.03)	(0.06)
		0.55	0.13	0.55
	Def	0.21	0.02	0.23
		(0.06	(0.05)	(0.07)
		3.62	0.50	3.14
Crop	Fuel	0.28	--	0.28
		(0.09)		(0.09)
		3.29		3.29
	Def	0.16	0.17	0.33
		(0.09)	(0.06)	(0.10)
		1.76	2.68	3.35
Fuel	Def	0.59	--	0.59
		(0.13)		(0.13)
		4.46		4.64

It is important to note however, that when IMF credit acts indirectly through debt, its effects on industrialwood production and cropland expansion are all positive. Thus, The implementation of structural adjustment programs as indicated by IMF credit use may not exhibit a consistent pattern in its effects. Population change plays a more indirect role in its association with deforestation. This is seen through intervening factors such as cropland expansion and fuelwood production, all of which are positively associated with population change. The study however, did not reveal a positive direct effect of population on deforestation, This possible counter-intuitive connection involving the direct effects of population on deforestation could occur when population change leads to further demographic responses such as migration to urban areas, leading to demand shifts in favor of urban non-wood products. While the results do not provide us with any insights regarding the direct relationship between population and industrialwood production, the results suggest that in countries with increasing populations, that are saddled with high debt burdens, these latter processes, acting in tandem, exert greater pressure on industrialwood production. The indirect effect of population on industrialwood production has a significant coefficient. The total effect of population on deforestation is also positive and significant,

due to the large indirect effects. Population change has the second greatest total effect on deforestation.

Improvements in the economy, via GDP changes, have significant positive direct effects on industrialwood removal, logging intensity and fuelwood production. The study also reveals that where countries experience economic improvements, there is a dampening effect on IMF credit use. The latter situation could reduce the debt burden, as the study reveals, and may, conceivably, have beneficial effects on forest resource use through the reduced pressure on industrialwood production and cropland expansion. The squared multiple correlations, R2, for the various structural coefficients as contained in the final model are IMF (0.29); DEBT (0.77); INDUS (0.28); CROP (0.68); FUEL (0.89); DEF (0.87). The squared multiple correlations for each equation can be interpreted as the proportion of variance in each y-variable explained by the prior variables that influence the y-variables. The R2 for deforestation is .87, an indication that a large proportion of the variance in deforestation is explained by the various effects of the exogenous and other endogenous variables specified in the model. All the other equations have high R2. The R2 for the IMF and the INDUS equations though respectable, are not as high.

Conclusion

This study has underscored the complexity of the deforestation phenomenon. While the aim of the study was not to present an exhaustive picture of the process, the use of structural equation modeling has provided us with better insights into the problem of deforestation. The study indicates that while population changes have effects on deforestation, such effects must be viewed in the broader context of other, sometimes more critical, variables. In essence, it is not population increases per se. Rather, it is the process of population acting through other variables such as debt, cropland expansion, etc. that result in the destructive impacts on deforestation. It is clear from the study that debt plays a dominant role in the process of deforestation, via its impact on logging activities, cropland expansion, and even on fuelwood removal. Considering the fact that the accumulation of debt and its impacts reflect more deliberate government policies, it could be inferred that changes in the debt burden of tropical countries will have major impacts, direct and indirect on deforestation. This calls for more deliberate national and international efforts in dealing with the debt problem.

In examining the debt problem, efforts should be made to address some of the underlying causes of debt accumulation. Development in many tropical countries is often synonymous with an insatiable appetite for imported goods. Meeting this demand means raising loans, and increasing the debt burden, and the debt service ratio. One option out of the debt problem has been an expansion of primary exports such as timber, and cash crop production.

In general, the findings of this study suggest that macro-level policies related to issues such as debt, economic change, land use change, and structural adjustment policies, even when they are only tangential to deforestation, could have major impacts on deforestation. This is because of the numerous complex interconnections involved in the process of deforestation. Thus policies should be carefully crafted to reflect possible environmental effects. In essence, forest issues and that of the environment in general, should be an integral part of any meaningful development policy. The findings also underscore the urgent need for positive initiatives such as debt-for-nature swaps.

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The Gender Ramifications and Equity Issues Associated with Natural Disasters

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India is an ideal breeding ground for social and natural disasters as it struggles with the problems of illiteracy, over population, poor health, and extreme poverty. When natural disasters strike, women are more vulnerable to their effects because of traditional social, economic and cultural patterns, which marginalise them and discriminate against them. Emergencies can erupt into chaos and confusion, experienced on any given day when everything that can go wrong does go wrong. In times of natural disasters, when confusion and chaos exist, these conditions impose an extra burden on women. This study looks at the impact of disasters on women.

I was the first female District Collector & District Magistrate in the 55 years of independence in Sriganganagar district, the granary of Rajasthan, one of the most fertile areas irrigated by three canal systems - Gang Canal, Bhakhra Canal and Indira Gandhi Canal. Though expected to pull the weight as an equal to many of my worthy predecessors, the challenges I faced were far greater for me than for a man. Women have to give extra effort to make a mark and to gain the same respect that seems to come automatically to men. I was met with undisguised skepticism in official corners and from the public. I was told that "when you come in you start with the negative balance against you and you have to prove otherwise". When I joined, I thought it was going to be a breeze, but it was a lot harder there encountering both natural and man made disasters such as breaches in canals, fire in an ammunition depot, drought. floods, relief efforts for earthquake victims, war at the border, and a breakdown in law and order following the murders of labour leader Darshan Koda and a young boy, Amit Arora.

I experienced numerous memorable situations one can only describe as a "few seconds that shake men and the world". These events leave a trail of warnings for disaster preparedness in the future. When coping with emergencies, many issues are raised. The experience of managing the natural and man-made disasters in Sriganganagar district gave me deep insight into the differences and similarities between male and female responses to disaster management. The gender analysis of the study of disasters, the strength and vulnerability of women in disaster response, raises a range of issues facing women both as victims of disasters and as participants in disaster management.

Disasters act like a magnifying glass of society. They magnify what is good and what needs help. Disasters do not affect everyone equally. What you are and what you do, determines your fate in times of crisis. If there were problems before the disaster, the same problems exist after the disaster, only magnified. When a disaster happens, both the strong and the weak points of a society stand out. This is also true as it relates to gender issues.

Most of us are familiar with the media images of mothers with children standing in the middle of the wreckage of floods, cyclones, earthquakes and droughts. I can recall the vivid pictures of the Bhopal Gas tragedy, Kargil War, Latur and Bhuj earthquake, just to mention a few. These images reinforce a common stereotype about women and disasters; that women are first and foremost victims. They are especially vulnerable, usually poor, often marginalised and lack influence. But this portrayal of women is not accurate. Women have an important role in communities. They are the one's who feed and care for their families and others in the community. They contribute financially (whether through formal or informal sectors). They are also an important force in community voluntary groups especially when it comes to involvement in disaster management.

Ammunition Depot Explosion

Piperane village, near Suratgarh, which lies 85 Kms. from Sriganganagar on the Sriganganagar - Bikaner national highway, witnessed a fire in the army ammunition depot on the 25th of May, 2001. It triggered fear and surprise among the population and left a sprinkling of ammunition over an area of 20 Kms. On receiving the information from the army officials, relief and rescue work became the top priority of the day. Soon after the detonation began with no let up in sight, instructions were issued to cut-off electricity, rail services, transport services and to reduce the flow of water in canals. Finally, the most important instructions were issued to evacuate the 7 villages in close proximity of the depot to prevent the loss of life. Fire tenders were summoned from Abohar, Ferozepur and Mukhtsar in Punjab, the adjacent districts of Hanumangarh and Bikaner, to supplement the six tenders of the district; the response time was incredibly quick.

After giving the orders to the rescue operations, I traveled to the location of the explosion accompanied by the Super-

intendent of Police. The long trail of 26 fire tenders were lined up awaiting the signal from the army officials who had cordoned off the area. Piperane soon became a camp ground for army officials, civil administrators, media and the public. The "Babe Ka Dhaba" soon became an improvised office. The temporary telephone connection was the only link with the outside world. The constant noise of explosions showed no signs of letting up until late that same evening. It was not until the next morning that the senior army officials escorted me into the depot. The remnants of ammunition and impact craters, the brunt of which was borne by the buildings, a jeep once owned by the Electricity Department now a scorched shell, the high tension wires writhing, the corpses of cattle, the burned houses were the scenes of devastation best left to the imagination. It was apparent that while the fire burned, there was clearly work for men of all ages, but there apparently was no place for women to get involved. Younger boys were soon recruited for relief work while women were seen preparing the food in three Dharamshalas of Suratgarh, which were converted into temporary shelters for the evacuees. It was an all a male affair, the emergency police service, fire brigade, salvation army including the bomb disposal squads, consisted entirely of men and the work they did was recognised as men's work. Women are perceived during disaster events as unimportant because of their relative lack of power and authority in Indian society. In the response to this emergency and others, men assume the central roles while women remain in the background. Women provided the food while men managed the provision of relief supplies and rescue work.

Sriganganagar, sharing 210 Kms. of international border with Pakistan, has gained the world's attention with the brewing Indo-Pak tension and deployment of armies in the region following the attack on the Indian Parliament on December 13, 2001, when the Chief Secretary of State was on a visit to review the much lauded campaign of the Rajasthan Government, named the "Prashashan Gaon Ke Sang". The widespread laying of mines in border villages caused a large portion of the population to relocate away from their agricultural villages. Many of them who trudged to the fields to water them or reap their crops, were severely injured and lost legs and limbs due to mine blasts. The occasional abuse of women also came to light. The decision to leave one's home, one's livestock and the meagre possessions one has, is not an easy one. Often when women leave their houses to seek refuge in a shelter, their possessions are either washed away or stolen in their absence. The result is social isolation which leaves them vulnerable. The social customs of 'Sasur-Bahu', 'Devar-Bhabhi' forbids women to leave houses in their husband's absence. When a disaster happens, the husbands leave to assist in relief work leaving the women alone to bear the brunt of dual duties. Moreover, struck by the fear of starting from scratch again, women become the most vulnerable group in the post disaster phase.

Though the evacuation plan of nearly 400 lakh people spread over 500 villages lying in the range of 20 Kms. from the border was well prepared, the fear generated by the disaster prompted families to move their women, children and costly possessions to safer areas. Because of the already unequal distribution of food among families, women ended up getting 20% fewer calories then the men who left to work at the disaster sight. In addition to food shortages, malnutrition and poor health add to the physical breakdown women experience during disasters. Also, the literacy rate among women is lower and unemployment is twice that of men. Add to this rising unemployment among rural populations, dwindling livestock and fodder stock, risk exposure to mines, and the district administration had to open 'chara depots', organise community 'langars' at pivotal points, and provide minimum relief to the blast victims which had already caused considerable suffering for the families. A large number of on-the-spot employment offices were quickly opened under various rural development schemes such as SGSY, BADP, MPLAD and MLAD, to organize citizens to get the necessary jobs done.

To truly understand how households responded to a war-like situation, one needs to understand the patterns involved in domestic labour and decision-making. Women's roles as mothers, wives, daughters, grandmothers, sisters and aunts, puts them in the position of doing most of the household and care giving work creating an unequal division of domestic responsibility and labor. The bottom line is that while women play a crucial social role, both public and private, their voice is unheard in organisational and community policymaking decisions including disaster response recovery work.

I vividly remember the morning of 26 January, 2001, which began the trail of suffering for so many in Gujarat. The time was approaching 9:00 a.m. and I was scheduled to take the salute for the Republic Day Celebrations. Minutes before that, I was conversing with my spouse in Jaipur when we both felt the tremors. Moments later we learned that in these few seconds, most of Gujarat had been badly shaken, particularly the Bhuj area. A registered 7.7 magnitude quake centered in the town of Kutch district instantly killed 20,000 people and injured many thousands more. The two minute blast caused extensive damage to houses, buildings, infrastructure, livestock and natural resources. The area of heaviest impact was the northwestern district of Kutch affecting the towns of Bhuj, Anar, Bhachau and Rajkot. Almost imme-

diately a call went out canceling all evening programs and every agency began assessing the scale of the disaster and its impact on life and material loss. The relief work commenced immediately. The spontaneous out-pouring of money by the people of Sriganganagar (a sum of one and a half crores) was incredibly impressive. That same evening my husband left for Bhuj to be part of the U.N. Disaster Management Team which ended up working for the next few months on relief and rehabilitation. He shared these observations of the disaster and the important role women played in helping the victims. After the earthquake, women in the disaster zone put all of their skill and will into helping survivors and protecting their families. Among the evacuees, women showed exceptional strength, firmness and grit. They survived by becoming involved in their own rescue and rehabilitation. They organised schooling for children, responded to the community needs as best they could and worked whenever possible. Many women said that working helped them to forget about the loss of their relatives; it kept them from falling into despair. Special search teams of women and girls were put to work locating displaced people. Because of their involvement, 70% of the ill and wounded children, old people and those in hospitals were found by their relatives. They also became involved in the re-settlement of orphaned children and the re-construction of quake-damaged houses, a crucial task that needs to be done within the first hours after a disaster.

The monetary contributions and concerns from all over India and the international community were impressive but occasionally inappropriate. The "ration supplies", clothes, plastic buckets, woollen blankets and high vitamin biscuits were gifts given with the best of intentions, but almost unusable in a country like India. There were complaints about the poor quality of relief grain, lack of clean drinking water and fresh vegetables and problems related to preparing some of these foods under the conditions that existed. The use of plastic buckets rather than the water pots the people were accustomed to using made water more liable to contamination and the delivery of water by tankers was not well organised often leading to free-for-all's and spillage.

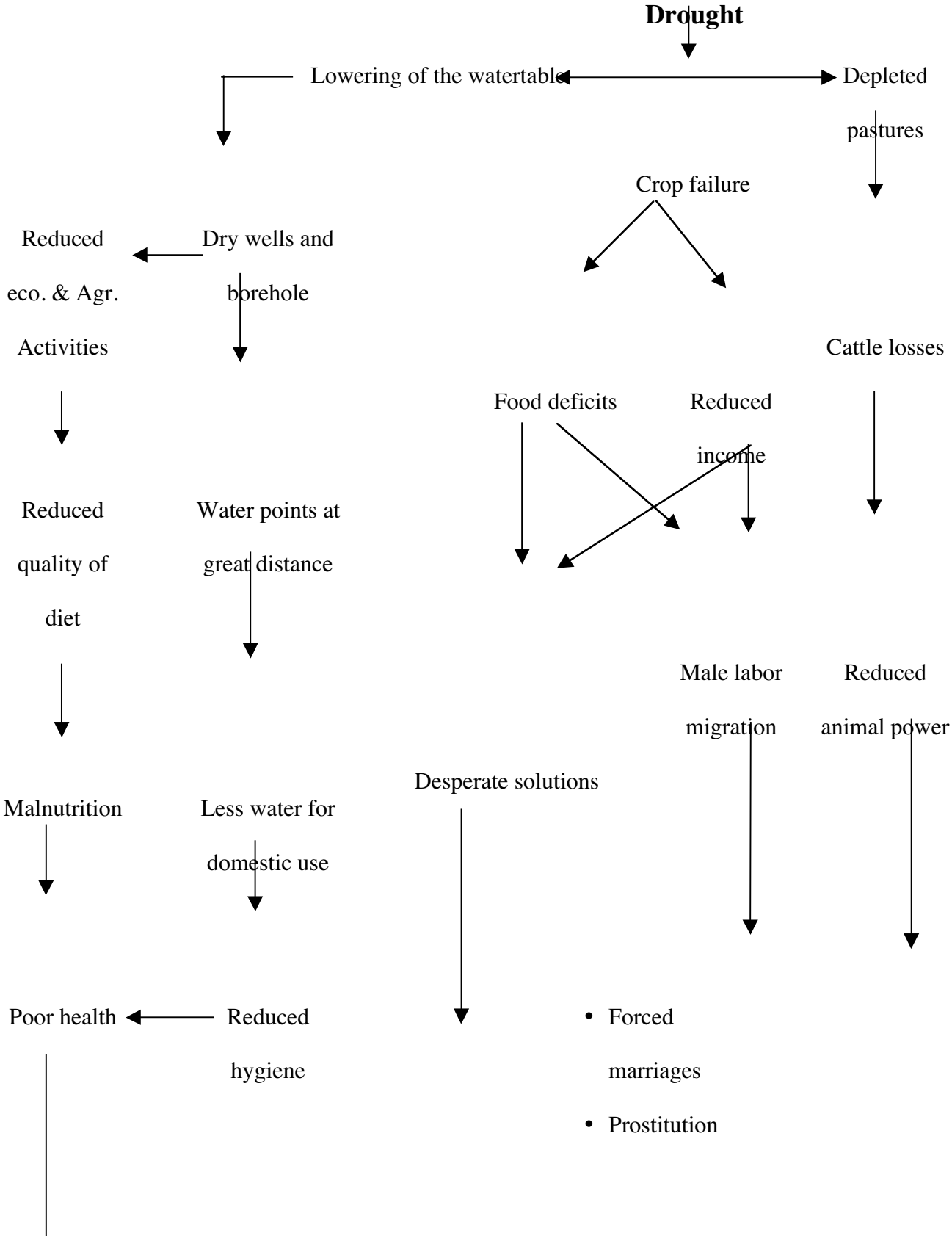
Monsoons

An ongoing problem of Sriganganagar district is the propensity of canals to breach. When this happened, this would lead to reprimanding the irrigation functionaries. Besides the Ghaggar flood prone areas, heavy rains would occasionally inundate the Suratgarh's Nagar Palika area leading to the flooding of Alipura village of Sadulshahar and part of bordering Punjab. The monsoons resulted in numerous breaches in the canals. Record water levels forced the evacuation of poverty stricken people of Alipura village long after the people with resources had evacuated. The relief and the rescue operations continued throughout the night leaving many victims and rescuers to spend the night in the open with only the meagre belongings they could carry on the camel cart. When the families had to be shifted to the nearest shelter with the sudden rise in the water level, the women, children and the elderly were too weak to make it. Again gender played a role in the vulnerability and exposure to risk. Women and children are more exposed to risk as a result of poverty and the lack of mobility which are major factors contributing to vulnerability. Housewives and young mothers displaced by floods found it more difficult to find wage labour and income earning opportunities, which in turn threatened the stability of their family unit. And young girls who lost their savings and belongings during the floods, items which provide their dowry and subsequent future well being, lost the opportunity for establishing a marriage relationship. This had serious implications for their social status, psychology and survival.

Drought

Badly hit by the loss of cotton crops due to scanty rain fall during the previous three years, 66 villages of Suratgarh were declared drought disasters, which also included some in the villages of the command area. A number of programs which included roadwork, revival of traditional water sources, digging of ponds, desilting of canals were undertaken to generate employment. Makeshift cradles from 'odhna (sari)' used to comfort an infant in the scorching heat were a common sight. Even though drinking water and medicines were brought in from other locales, one still saw the weakest struggling just to survive. Scarcity of water resulting from wells that hadn't recharged because of the drought caused people to have to wait in lines for hours to collect water. Women and children spent up to 6 to 8 hours daily to collect water. Again, the impact of drought on women is more severe because of their low socio-cultural and economic position within the family and community. Numerous factors such as the shortage of water, loss of male employment in the agricultural economy, migration from one area to another, ill health of animals and members of their family, increased the workload for women. Women are also affected by the consequences of land degradation. It is almost always exhausted land on which equally exhausted women toil. The migration of men to find work reduces men's role in family duties and obligations. Consequently, women's workloads and responsibilities become greater, even while they have not enjoyed the corresponding increase in influence and opportunities to raise their status. The far-reaching impact of drought is illustrated in the following diagram:

The Impact of Drought



Conclusion

Studies of many types of disasters over a long period of time have shown that the behaviour of men and women during these events is different. During various stages of disastrous events, women's views and contributions are rarely recognized. For example, in the post impact period, most women are left to perform traditional and under-valued tasks such as child care, food preparation and domestic work, while men usually leave the women to participate in and assist with the more visible and highly publicised relief efforts. Women are more vulnerable, less likely to participate in the planning and preparation for disasters and therefore unable to cope in the wake of one. Gender determines one's ability to anticipate, prepare for, survive, cope with, and recover from a disaster. Gender inequality embedded in the social and cultural fabric of Indian society is the root cause of social vulnerability among women. The traditional Indian view of women as victims, leaves men in the sole position to make decisions concerning their roles and needs, and completely overlooks the vital work and unique perspective that women can bring to disaster management.

The changing nature of the family India is affecting the roles and responsibilities of emergency workers. The disappearance of joint and extended families, urban migration, separation of working couples and the growing number of single parents raises a whole new set of issues in disaster management. What happens to children when a single parent is needed for an emergency? What happens to children when both parents have emergency responsibilities? What sort of childcare arrangements are available during disasters? Since survivors of the disaster do the bulk of the initial search, rescue and transport of victims to the hospital, the absence of men hinders the initial response and the few men who are there, leave for where they are needed. Women live longer than men, and elderly women who often live on their own, now outnumber men. The elderly may be reluctant to move out of their homes on short notice, especially when the prospect of approaching disaster is daunting.

Awareness and the demystification of stereotypes related to women is necessary to remove the bias and allow for consideration of the specific and differing capacities of women. Information targeted to women needs to be provided to change this situation, information about disaster management such as not to use the phone lines during floods and thunderstorms, treat water to prevent the outbreak of an epidemic, and much more. The strengths, knowledge, and skills possessed by both men and women in preparing for, managing and rebuilding during disasters are different, but both are useful in numerous ways. Women should be seen as active participants in the solutions. A paradigm shift is needed to inculcate gender consciousness in the citizens of India and a view that all disasters as social events require the efforts of women as well as men. Another shift in thinking that is needed in the disaster paradigm is to shift the emphasis from relief efforts to the mitigation of disasters. There is a need to actively enlist women in disaster preparedness as well as coping with the ensuing physical and mental stress that accompanies one. This can be done by providing women with training in leadership; improving their awareness of and involvement in local risk assessment; improving communication and delegating primary responsibilities to women in the management of emergencies (e.g. food, shelter, medical, etc.); showing sensitivity to women's family situations and the special needs of women; and encouraging new attitudes towards women's roles. It is a new age for women in the world, and it is time for India to become a part of it.

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