**1 Introduction**

Infrastructure, traditionally the preserve of technocratic engineers, has been marginal to socioeconomic development debates. It is used here as a tool to open up the framework within which urban poverty is discussed, a Foucauldian attempt to free that which purports to be natural in order to alter both the theoretical parameters and the empirical interventions. This article suggests that questions framed within the terms and language of a given debate (in this case the orthodox poverty debate) will result in approaches which are predetermined and may not be the most appropriate.

Infrastructure, in some senses 'new' material for the poverty debate, thus presents a useful test case for exploring the article's central hypothesis. As the wider urban debate has shifted in emphasis from a technocratic to a social emphasis, this focus on infrastructure explores the extent to which underlying assumptions have been carried from the technical to the social. An approach which incorporates both the social and technical (once freed from these assumptions) might lead not only to rethinking urban infrastructure but to the nature of urban poverty.

This article opens with a summary of the current orthodoxy which is then situated within a genealogy of the discourse of poverty. Making visible the theoretical precedents which have informed the provision of infrastructure, the article then proceeds to analyse both the financial/technical and social/cultural aspects of infrastructure from a poverty perspective, suggesting that they are informed by a 'Fordist' approach i.e., one which advocates and searches for a standard mass model thus inherently limiting the possibilities of a more heterogeneous vision. A Zambian case study explores the possibilities for a more flexible, differentiated approach and the ways in which this practice might be used to inform an alternative discourse on poverty; a discourse not only rooted in the concrete but one that might offer further practical innovations. The article concludes with (exploratory) conclusions for a research and policy agenda.
2 Urban Poverty: Summarising the New Orthodoxy

WDR 1990 aimed to centre poverty within the development debate, recommending a strategy to address this 'most pressing issue'. The approach relies on two (potentially conflicting) tenets: (1) a focus on the enabling environment; i.e. a continued emphasis on 'getting prices right' and a strong defence of neo liberal macro policies such as devaluation and exchange rate policy; (2) an emphasis on building (African) capacities; i.e. 'letting ordinary people take charge of their lives' through interventions aimed at promoting capacity-building within institutions and broad participation in both the planning and assessing of poverty-related projects and services. Infrastructure, it should be noted, is both a foundation of the enabling environment and a key service.

The publication of WDR 1990 coincided with a renewed interest in urban issues influencing interventions and research, most notably the World Bank's own poverty assessments. Typically the author has observed a two pronged response to urban poverty assessments produced within this framework. First, to note that the local urban economy (unlike the rural) is so closely linked to the macro economy micro-level interventions are unnecessary. The solution for cities is an increased emphasis on the enabling environment, i.e. broad macro policies. Second, to emphasise the need for safety nets such as food for work programmes for the poorest of the poor. It is argued in this article that neither of these two responses are satisfactory. They are advocated on the basis of (unacknowledged) historical logic and precedent as opposed to an understanding of current needs or possibilities.

3 A Genealogy of Urban Poverty

Poverty, both as a field of study and set of socio-technical interventions, emerged within the discourse of political economy at the end of the eighteenth, beginning of the nineteenth centuries. Procacci's fascinating analysis of the historical texts has illustrated the manner in which political economy developed as a discourse on wealth (Procacci 1991). Poverty, the territory of unfulfilled needs, has no independent meaning within this discourse other than as a counterpart to wealth (Procacci 1991: 153,154). Thus, in the works of Smith, Ricardo and Malthus, poverty is not evaded but understood as inevitable inequality. This 'economic' reading, Procacci argues, leads to poverty becoming a fact of nature, impossible to control by direct intervention: 'What can the law do relative to subsistence? Nothing directly...The force of physical sanction being sufficient, the employment of the political sanction would be superfluous.' Bentham 1843, Principles of the Civil Code.

The response to poverty developed is twofold. (1) The poor are divided conceptually between the indigent poor - those who are indolent - and the virtuous poor who are industriously surviving within the system. (2) A dual set of interventions is developed: the indigent are policed through the poor law whose institutions provide relief to those who are truly paupers; the virtuous poor are supported through a series of macro-economic interventions designed to protect the labour market and unburden the tax payer.

The similarities to the current poverty response in which there is a division between the indigent poor who are 'targeted' with safety nets, and the virtuous poor, the informal sector survivor who will benefit from deregulation, are obvious. In the nineteenth century interventions are supported by what Procacci refers to as 'weapons of combat' (1981: 164). Both institutions and systems of measurement, the most prominent of which is statistics (Foucault 1980: 175; Hacking 1991: 182, 183), are founded on the basis of the conceptual categories developed within the political economy. The programmes, policies and studies which result serve in turn to reinforce the original categories and divisions in a way which, it is argued here, has parallels to policies developed in the twentieth century in response to poverty research.

What is important is that this homology between
conceptualisation and intervention is not seamless; there are ruptures and uncertainties in the discourse largely because poverty remains. There is a (growing) fear of the mobile mob; ‘this floating population of the great cities, that dangerous enemy of our civilization’ (Antoine Buret 1840 quoted in Procacci 1991: 158). In the nineteenth century, as in the twentieth, the persistence of urban poverty leads to a policy response which revolves around urban planning. There is a perceived need to provide basic services as a means of enforcing stability and ‘good citizenship’ (Castells 1983: 185, 190, 317; Procacci 1991: 156, 165).

Infrastructure takes centre stage. Interestingly, so do two other ideas that are central to current thinking around poverty. First, the notion of difference. In the nineteenth century the objective of poverty interventions was not the elimination of inequality per se but the elimination of difference (Procacci 1991: 160). Difference in this nineteenth century context is related to forms of conduct; the need to control mobility, spontaneous solidarities and organisations which elude legal or contractual definition. It is argued below that the inheritance of this approach can be seen in terms of the twentieth century standardised response to the technical aspects of infrastructure provision and to the accompanying requirements for institutions and community organisations. Closely related then is the second idea, the ‘weapon of participation’, seen in the nineteenth century as an instrument for co-opting consensus and a vehicle to encourage certain associative forms (Procacci 1991: 166).

The manner in which urban poverty is currently approached has an important historical precedent. What is illustrated by the parallels that can be drawn between orthodoxies of the early nineteenth and late twentieth centuries is that to generate questions about urban poverty within a certain genealogical context is to an extent to determine the response. It is a response which, in the developing world at least, has not been adequate; 60 per cent of urban populations remain without access to water services (World Bank 1991: 11). In the case of Zambia, sustainable service-delivery in urban areas is a persistent problem with 25 per cent of the total population living in urban areas without formal infrastructure provision (World Bank 1994: 1). This then is the impetus to rethink the parameters of the debate. It is an attempt to allow new questions and solutions to emerge. In the sections that follow, an analysis of infrastructure provision is used to question that which has seemed logical and fixed in the poverty debate (the discourse) and service provision (the practical solutions). The search is for innovative practical interventions which might in turn reverse the weave, an altered view of urban poverty.

4 Investing in Infrastructure: The Fordist Approach

Investment in urban infrastructure in Southern Africa has broadly followed one of two approaches. The first, rehabilitation of existing infrastructure, has either no or negligible impact on the urban poor who live beyond or outside the formal infrastructure networks (Swilling 1994: 349). This fact is either ignored by engineers or acknowledged but justified on the grounds of resource scarcity. The second approach acknowledges that the majority are without services to be rehabilitated, but remains within the Fordist technical blueprint mould. For example, in the Zambian case the uniform provision of one standpipe per 25 households in low income areas presented a solution whose average life before vandalism or breakage was one year; the services were neither those wanted or cared for (Rakodi 1987: 355). This article argues that the possibility exists to rethink this unsustainable approach to both the capital and institutional investment in infrastructure.

5 Capital Investment

Swyngedouw’s analysis of urban water provision in Latin America suggests two key points for rethinking capital investment. The first relates to the role of external investment, the second to the supporting role of subsidies. Investment in infrastructure has

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been external; Western capital, engineers and technology have constructed most if not all of Latin America’s water and sewage systems (1995: 391), driven by both the local bourgeois dreams of the ‘modern’ city with a beautified, sanitary centre and the need to control the social contradictions which emerged with a developing urban, industrial economy. In an echo of nineteenth century concerns Swyngedouw notes how in Latin America the provision of infrastructure fitted this purpose well, diverting social stress while maintaining a healthy labour force and relatively low reproduction costs (1995: 392).

External investment is self-perpetuating since the original systems which were constructed with external capital and expertise are now structurally dependent on external financing for their rehabilitation. In Swyngedouw’s Latin American case study international financing of urban water works grew to 43.5 per cent in the 1980s, of which about half came from the World Bank (1995: 398). No figures could be obtained for the African countries but they can safely be assumed to be similar. The source of finance then in turn reinforces the type of technological mastering pursued since it must be open to international tender. A process of tender open to international engineering and construction companies will inherently privilege large scale infrastructure investment as opposed to local small scale solutions or institutional improvement: investments which in turn cannot be maintained locally and thus the cycle is continued (1995: 398).

It is a cycle whose recurrent expenditure is largely supported by subsidies. Swyngedouw argues this in his second point pertinent to this article, that it is misleading to talk about subsidies which imply a rational budget. The practice is one of a deficitary system of emergency financing. An *ad hoc* model is designed to serve the high cost patterns of external investment (1995: 393). Within this context it is interesting to note how recent arguments for the removal of subsidies and pricing have taken place at a more localised level. Thus for example current poverty research has produced quantities of information illustrating the ways in which the poor are currently paying up to 100 times more for services than those connected to the formal system (Black 1994: 9; Harpham 1988: 114; World Bank 1991: 48). These figures are used to support arguments that the poor are ‘willing to pay’ for improved services. The standard balanced account mechanism applied to low income users in the poverty debate is not however applied to international investors, allowing their models to prevail and continue (Swyngedouw 1995: 392). Implicitly recognising this difficulty the World Bank advocate raising tariffs to cover operations and maintenance on middle income consumers in order to generate revenues for debt service and wider service provision (World Bank 1993: 69). That the system to be remedied and perhaps expanded, may not be rational is not suggested.

Swyngedouw’s analysis emphasises the manner in which international investment in fixed capital dictates an international approach to infrastructure provision and financing. It is an approach which is homogenous based on the expertise of the external investor rather than the needs of the recipient city. The role of international capital in contributing to this homogenisation is illustrated further by the work of King (1990). In an argument which links international capital to the globalisation of culture he cites the example of Japanese public works corporations which went global in the 1980s. The example of Kunagi Gumi, a small scale Japanese contractor which moved from 135th to 6th place between 1981 and 1988, is used to construct an image of international public works corporations roaming the world seeking where to operate and invest their capital – if necessary tearing down existing environments to achieve their aims (1990: 400). In Zambia a partnership between Jaika and Mitsubishi was observed by the author to be a significant impediment to the localised differentiated investment proposed for low income areas by non governmental organisations (NGOs) and the World Bank.

These examples begin to highlight the way in which an analysis of infrastructure investment reveals factors beyond the traditional poverty debate, factors which are silently influencing outcomes. What is suggested here is that the logic of international capital blocks a more differentiated approach to infrastructure investment at the local level. In a pertinent and important argument King has suggested that this homogeneity in global investment has implications which go beyond the strictly economic explored above to inform the social. Introducing
the concept of 'symbolic investment' King posits that certain types of investment are symbolic in the way they construct cultural practices. These practices influence the ways in which both the concrete services provided and the discourse which surrounds them are either accepted or resisted (King 1990: 401). In the next section this idea is explored in the context of infrastructure and the poverty discourse.

6 Symbolic Investment

Focusing on infrastructure in relation to social and cultural processes (as opposed to economic and financial) involves questioning the extent to which the technical design, construction and institutional aspects of planning and maintaining a service might currently be dictating policy options. Implicit here is the idea that certain standardised forms of investment have the effect of producing and reproducing certain forms of society and social organisation. The Fordist approach to infrastructure provision, it is argued, extends to these (barely acknowledged) cultural aspects which not only reproduce certain forms of service delivery with recurrent problems but contribute at a more fundamental level to the definitions and assessment of poverty, thereby foreclosing innovative solutions and debate.

The argument advanced here is central to this article, since reconceiving the relationship between infrastructure and investment in its widest forms will be important in readdressing pro-poor urban infrastructure and ultimately 'poverty'. To this end this section first reconsiders standard approaches to institutional investment and secondly introduces ideas on infrastructure as a cultural symbol (with parallels to the buildings and architecture of the city). To consider the cultural aspects of infrastructure is to focus on reactions and resistance to what is currently provided. Drawing on and leading to the Zambian case study, the cultural focus provides the transition point away from thinking influenced by the historical framework, towards rethinking the possibilities of infrastructure based on the way interventions have been received in practice.

6.1 Institutions and infrastructure

The importance of thinking about institutions in relation to the infrastructure debate has been acknowledged by both governments and donors (WASH 1993: 100–107; World Bank 1991: 40) who have learnt that new forms of technology cannot be implemented by old institutions. (It is still in this sense a debate that is led by technological needs.) Institutional reform of the service-providers is central to the agenda and there is similarly a convergence around the need to incorporate ‘civil society’ illustrated in the widespread interest in partnership with NGOs, community groups and participation (Swilling 1994: 351–353). This reflects the new orthodoxy of the enabling environment, capacity building and the need to let ordinary people take charge discussed in the opening of this article.

Watts has suggested that the new concern with institutions and organisations is a logical extension of the dominant development discourse; both the emphasis on the market and an acknowledgment of some of its failings in the 1980s (the context it should be noted, which gave birth to the new emphasis on poverty) has led to the demand for new institutions for the 1990s (Watts 1993: 238–239). This new convergence and re-emergence of civil society is, in his analysis, an outcome determined by the central tenets of the ‘new’ orthodoxy and as such cannot be seen as either a step forward or ‘new’ thinking. It is not necessary to accept fully Watts’ sweeping analysis to note the interesting way certain assumptions are maintained, unquestioned, within this new institutional/social focus.

The homogenous investment in technology is twinned with an altered but still standardised approach to institutions. Thus in Zambia, for example, the recipe is one of ‘pruning’ public sector providers and, at the (low income) community level, insisting on the need for a community organisation and participation. The argument here is not that thinking around institutions has not changed, but rather that a Fordist approach has been maintained; the search is still for a new model. As in the case of fixed capital investment, this model approach to institutions is limiting the possibilities for diversified infrastructure delivery.

It is at the community level that the contradictions are most obvious. 'Best practice' suggests that an organisation must be formed in order for a community to access a project (WASH 1993: 66; World
Bank 1991: 70). The 'community' in this context is defined by the form of infrastructure to be delivered since certain pre-conditions are attached which may or may not accord with an understanding, or often multiple understandings, of 'community' at the local level. The external, standard nature of this definition of the community deserves further investigation as a plausible central reason why local level institutions are frequently not sustained with the result that the infrastructure too breaks down. Experience suggests that effective investment involves widening the institutional framework to think in terms of relational networks and connections as opposed to static community organisations. There is an obvious and interesting paradox here because what is proposed (and integral to the design of the Zambian project case study discussed below) accepts and builds on mobility By contrast the fear of the 'floating mob' is still present within the standard institutional approach of the new orthodoxy To challenge this orthodoxy in the provision of infrastructure is thus to take the first step in challenging the wider poverty discourse in which pro-poor policy is founded.

6.2 Infrastructure as a cultural symbol

Thinking about infrastructure as a cultural symbol further opens the debate, revealing forms of protest, cultural and political resistance which take shape in response to particular forms of investment. Development projects are subverted by those for instance who don't think they need to pay, who insist that water is a free good. The planners response is to cajole and coerce; those who are not willing to pay need to be educated, re-socialised in an attempt to make reality fit the development project. Concepts of the 'deserving' and 'undeserving' poor are again brought to mind and water infrastructure can be seen as a grid with which to discipline in a context in which the threat of protest is never far away. Protest in this context is not necessarily intended to suggest organised strikes, a manning [sic] of the barricades, but might be something as simple as illegal connections to formal infrastructure systems. It is suggested here that such resistance could be seen not as a threat – something to control – but rather as a positive impetus, providing ideas for innovative and flexible infrastructure planning.

In Zambia two documented forms of protest are illustrative. The role of violence in urban water provision; death in the queue – both psychological due to the daily boredom involved, and, more importantly, the literal threat of physical attack – which reveals the way in which standard provision either cannot be used or is used selectively. In a number of Lusaka's low income areas (compounds) there is only adequate water pressure at night when it is too dangerous for women to draw water in unlit areas. In the second example, in George compound, women draw water for washing from standpipes or shallow wells but pay more to draw cleaner drinking water from the military, a necessary tactic to avoid death from cholera (World Bank 1994: 35). Consumers differentiate between costs and the quality of various forms of water provision. The opportunity exists to build on this and think laterally; in some areas, for example, a more standard approach might suffice if accompanied by street lighting. A flexible pro-poor approach implies thinking not only about differentiated forms of investment but also about linkages across services.

Conceiving of infrastructure as symbolic investment is to centre the role of social relations in infrastructure provision through thinking about the role of flexible institutions, and about ideas generated by the daily practice of resistance to current forms of planning and investment. Resistance to current approaches interrogates the framework of the poverty/infrastructure debate. The policy-maker is challenged to listen and to plan in such a way that these creative voices are heard as opposed to that of the dominant historical logic. Such an attempt is made in the Zambian project discussed briefly in the case study which follows.

7 Flexible Urban Infrastructure: A Zambian Case Study

This case study, a component of the World Bank funded Zambia Urban Restructuring and Water Supply Project currently in the initial stages of

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1 The project description is drawn from an outline in the Zambia Urban Poverty Assessment (World Bank 1994: 49, 50). Opinions are those of the author and do not represent those of either the World Bank or other institutions involved with the implementation of the project.
implementation, illustrates how a flexible, non standardised approach might work in practice, providing services and in the process challenging the categories and concepts of the current urban poverty debate.

The project, as originally conceived, was an urban infrastructure rehabilitation project which aimed to increase water supply through engineering and institutional investments. The findings of the World Bank’s Zambia Urban Poverty Assessment resulted in a low income component in which approximately US$ 5.5 million (13 per cent of the credit) was reassigned to rethinking water provision in low income areas of Lusaka and the Copperbelt cities. In these cities it is estimated that up to 60 per cent of the population are not served by formal water and sanitation services, thus the original project focus on service rehabilitation would only further distort equitable service provision (World Bank 1994: 33).

The approach in the low income component is one of flexible localised investment (differentiated technology and forms of organisation). The component has the dual objectives of developing sustainable water supply and sanitation systems in low income urban communities and of facilitating a process of participatory institution building at the community level, emphasising not only horizontal linkages within the community, but vertical linkages between communities and municipal institutions. It is expected that financial investment will take place up to a year after project start up to allow for the facilitation of participatory structures at the community level. The project builds both on Zambia’s urban historical experience of the 1970s and a wide ranging field level review of current NGO initiatives (World Bank 1994: 49).

Communities will generate local projects as opposed to approving those based on an externally generated model. Participation is explicitly intended to embrace a process of confrontation leading to consensus, as opposed to a participatory process which primarily seeks approval for a pre-conceived idea as has been the historical experience in Zambian urban areas (reviewed in Rakodi and Schluyter 1981). A link is made to the central components of the project through a ‘bureaucratic reorientation’ component within municipal councils, which twins social and technical staff at all levels of project intervention to ensure communication can take place between the councils and the communities. Thus there is no blueprint for institutions or organisations: guidelines stipulate groups which must be included in the participation process at the community level (and topics to be covered in the planning process, for example operations and maintenance). The emphasis is on relational networks and broad band communication between levels rather than institution building as such at either the community or municipal level.

Technical aspects of the project follow a similar approach; no guidelines have been laid down as to infrastructure technology. Communities will design their own projects and can, if they wish, choose from a range of partners (predominantly NGOs who participated in the design of the component, with experience in the water sector or community facilitation) who will be able to advise on the different technologies and their implications in terms of operation and maintenance costs. A per capita investment ceiling has been established over and above which communities are expected to contribute in addition to making an upfront contribution to operation and maintenance. It is important to understand that the choice of technology is expected to vary not only between communities, but within communities, given the heterogeneity of the urban poor. For example, a standpipe for some households and a yard tap for those who are wealthier, based on the maxim that services will only be sustainable if they are based on ‘what the poor want and are willing to pay for’.

The approach is flexible and expected to alter. It is a process of ‘learning by doing’ and, given its experimental nature, the difficulties that might be encountered are an integral and important part of the process. Two can be mentioned briefly, one institutional, the other technical. In project design work at the community level existing forms of organisation for water delivery were reviewed. These informal institutions ranged in character from shared systems of queuing to more structured groups who maintain and protect hand pumps. It was noticeable that in all cases these informal organisations (often more loose associational networks than structured organisations which had, however, in some cases been operating for up to 15
years) were made up of and run by women. In more formal organisations, where NGOs for example had intervened, organisations were predominantly male. The question is raised as to whether a formal infrastructure project defined as a community concern (rather than a woman's daily activity) excludes women, whether the move from informal to formal organisation, however flexible, is to alter the gender balance of power away from women.

The second difficulty results from the emphasis on social planning. Community-generated projects almost always ignore the need for drainage and exclude demands for sewerage. A process of participation in this instance leads to the rejection of widely accepted technical experience, i.e. the need for investments in drainage and sanitation when water supply is to be increased. It is important to add that the exclusion of sanitation is complicated by the agenda of payment for services (Rakodi 1987; 352, 360–363). Sanitation is more expensive than water and in projects where the community must make a contribution, such as the Zambian project, communities who do conceive of the importance of waste water provision may not be willing to pay. The challenge is to keep thinking, not to freeze the definition of flexibility.

8 Conclusions and Policy Implications

To recapitulate, this article has argued that parallels can be drawn between classical and current orthodox approaches to urban poverty. Interventions that appear to be ‘new’ have to some extent been predetermined by the framework of analysis. In the case of infrastructure this has resulted in an approach to both social and economic aspects of provision which has been neither sustainable nor reached the majority of those without services. A Zambian case study reveals the possible alternative flexible approaches to infrastructure with implications for the understanding of urban poverty. There can be no definitive conclusions, however there are policy implications in the analysis, and three areas for further investigation can be suggested.

- **Theoretical.** Linking ideas of nineteenth century poverty with assessments of the 1990s is not intended to imply a smooth historical progression but rather to question the conditions under which an alternative discourse might be produced. Why at a particular juncture do certain civil alliances take up ideas and whose interests are served? An important starting point was implicit within the analysis of investment; it is clearly important to understand in more detail the actions and motivations of developers, individuals and donors within local historical and cultural frameworks.

- **Institutional.** Current concepts of community used as a basis for planning poverty interventions have been problematised. It has been argued here that what emerges as a community organization is often shaped by the requisites of the project and supported for only short periods by those who hope to gain. Sustainable interventions should seek rather to build on the existing multiplicity of organisational forms. Modes of resistance to current initiatives can provide important signals of new, productive ideas and institutional networks. It is implicit within the argument that these alternative ideas and institutions will provide the starting point for reconceiving the poverty discourse. New institutions supported by a flexible approach provide the opening to transform the discourse that gave birth to them.

- **Architectural.** The physical role of infrastructure is a silence in social theory. However, the analysis in this article implies that it is impossible to conceptualise society without reference to its physical environment. The ‘built’ elements of infrastructure inform us about local social organisation and global links in capital markets and investment. The 1950s pump, mass manufactured in London and found broken in George, Lusaka in the 1990s, is a testament to the recurring, unsolved problems of infrastructure provision synonymous with and symbolising urban poverty. It tells us the history of infrastructure investment in Zambia and, crucially, offers a starting point for rethinking the role of infrastructure investment.
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