A COMPARATIVE STUDY OF FOUR COUNTRY-SPECIFIC LABOUR-INTENSIVE INFRASTRUCTURE DEVELOPMENT PROGRAMMES: Policy Implications for Sub-Saharan Countries including South Africa

H. A. Quainoo[1] and R.T. McCutcheon[2]

Abstract: In sub-Saharan Africa unemployment and poverty are widespread, persistent and high. These are aggravated by inadequate capacity (at all tiers of government) and huge infrastructure backlogs. Employment-intensive means of infrastructure delivery have been successfully implemented in several sub-Saharan African countries, and elsewhere, to generate employment and reduce poverty. This paper examines four major sub-Saharan programmes and reaches conclusions regarding their achievements, delivery mechanisms and shortcomings. Analyses of programmes from several countries, Kenya, Botswana, Ghana, and Lesotho, demonstrate that given adequate resources, human capital, government support and adequate preparation, significant additional employment per unit of expenditure could be generated cost-effectively. It should be possible to replicate similar large-scale national programmes in most sub-Saharan African countries, including South Africa. Conclusions and recommendations are derived which should be applied to future endeavours in sub-Saharan Africa to improve programme design and performance. Implementation of these recommendations would help generate significant additional employment per unit of expenditure and contribute to poverty alleviation.

1. Introduction

1.1 Background

Since 1970s, many developing economies have been grappling with endemic socio-economic problems *inter alia:* deeply-entrenched poverty, unemployment, underemployment, inadequate capacity and lack of basic infrastructure. Among these, a common denominator and the most widely discussed is unemployment; but solutions seem remote. However, any effective solution to the problem demands an understanding of the underlying political, institutional and external environments in addition to the socio-economic dynamics of potential beneficiaries (ADBI, 2000).

Agreement exists amongst researchers and interventionists in the development field about strategies for poverty reduction with two main constructs emerging: economic growth and provision of basic infrastructure (McCutcheon, 1991, 1995, Starkey et al, 2002; World Bank 1994; World Bank 2004). While McCutcheon and the World Bank's Development Report 1994 emphasise basic infrastructure provision through innovative delivery methods, others like the Shanghai conference reported by World Bank in 2004 emphasise sustained economic growth alongside other factors documented by McCutcheon in 1991. Poverty reduction approaches range from an economic growth perspective, through rural economic-base development initiatives, to social safety nets and access to micro-finance services (ADBI, 2000, World Bank 2004). All these measures are noteworthy in combating poverty. The Shanghai conference reiterated the essential ingredients for implementing successful programmes documented by McCutcheon almost two decades ago, a demonstration of relevance of employment-intensive infrastructure programmes.

The theoretical framework for labour-intensive construction and the potential for significant *employment generation per unit of expenditure* are well documented (World Bank, 1986; McCutcheon, 1991). Based on theory and experience in Iran and Kenya McCutcheon (1991) codified lessons learnt from experience into *Theory and Principles of Employment-intensive Engineering* juxtaposed a four-phased approach for implementing a successful national programme to develop skills through training and achieve a significant increase in employment per unit of expenditure without compromising project management principles. Complementary work done by and in association with *Work* Research Centre, Wits University, resulted in the production of *Choice Of Technique Analysis* (COTA) (Phillips, Pintusewitz, and McCutcheon, 1995), and *Team Balancing Exercise* (Croswell and McCutcheon, 2003), aimed at improving employment-intensive infrastructure construction design and results in the fight against poverty and unemployment.

Void of understanding of some basics concepts of poverty alleviation and public infrastructure development, decision-makers often rush into implementation in order to save money and time from adequate design. But, to quote Rogers (2006), *"The primary thing you can do to guarantee difficulty in a project of this magnitude is to try to accelerate the schedule"*. Studies indicate that for a new infrastructure development programme, the timeframe for good planning and design should be about the same as that required for implementation (McCutcheon, 1997 – 2007; Wideman, 2001).

In a paper presented at the First International Conference on Employment Creation in Development, McCutcheon (2001) recorded the achievements by employment-intensive programmes in five sub-Saharan countries as follows:

- thousands of kilometres of rural roads have been constructed and maintained;
- hundreds of thousands of person years of employment generated; and
- thousands of skilled people produced from associated training programmes.

Analysis revealed that five to seven times more employment was generated per unit of expenditure, without compromising cost, quality, or time. The potential has been proven in large-scale operations over two decades. Kenya's experience was hailed as the best know donor-funded labour-intensive infrastructure programme (McCutcheon, 1997-2007)

1.2 **Problem Definition**

Though difficult to establish causality, research indicates that an adequate and well managed infrastructure stock of a country (supported by appropriate policy) has the potential of determining the economic health of its citizenry and help alleviate poverty (World Bank, 1994). Various attempts have been made globally, to help solve the soaring unemployment and poverty issues.

To date in South Africa, there has been apparent lack of replication of Kenyan's experience of national employment-intensive infrastructure programmes notwithstanding the country's high levels of unemployment, general lack of capacity and skills, and poverty in former home-lands. What are the underlying reasons for this phenomenon?

Since mid-1970s, there has been a general shift from the force-account /employing individuals on contract basis to contracting for provision of public works. However, results are mixed. Several reasons account for the *non-delivery*: lack of Engineers and Managing Contractors (Dison, 2005), insufficient planning and overly political interference to the exclusion of objectivity in programme planning and sound management. The performance of small-contractors trained to implement construction programmes labour-intensively has been unsatisfactory: in South Africa, for example, only 1.4% of contractors trained survive within

a period of five years (McCutcheon 1997-2007). Why this high failure rate and poor quality of delivery amongst emerging contractors? Is it lack of capacity, an institutionalisation problem and/or unfavourable project environment? If lack of capacity, is the government doing enough to attract and retain requisite staff? Or, is the problem symptomatic of government's bad policy instruments and strategies resulting in poor implementation?

This paper makes a comparative analysis of successful labour-intensive road programmes carried out in four sub-Saharan African countries, namely Kenya, Botswana, Ghana, and Lesotho; and draws policy and implementation implications for other African countries. To achieve the above objectives, case-study evaluations (desk and field) review were carried out in the afore-mentioned countries – with the (field) data collection spanning from 2002 to 2007.

2. Four case studies on employment-intensive construction in sub-Saharan Africa

2.1 Labour-intensive construction in Kenya

Over the last three decades Kenya has implemented three large-scale, national employment-intensive road infrastructure programmes with two-pronged, over-arching objectives: to improve road conditions and reduce poverty, and have resulted in over 14,000 km of high standard rural access roads constructed or improved (McCutcheon and Quainoo, 2005) and millions of worker-

days of employment (DANIDA and IT Transport, 1997). These are the Rural Access Road Programme (KRARP) in the 1980s – the first most successful and largest employment-intensive programme in Africa – which was succeeded by the Minor Roads Programme (MRP) – accountable for maintaining and improving over 4,500 km of minor and secondary roads; then Roads 2000 maintenance programme (even a higher standard of road than MRP). The first programme in 1980s was primarily to provide access roads to boost agricultural production and reduce rural poverty by linking the economically productive rural areas to market centres (Kenya Roads Board, 2004); this resulted in about 8,700 km of rural roads constructed labour-intensively.

In the early 1970s prior to the start of the Kenyan Rural Access Roads Programme (KRARP), maintenance of roads in Kenya had been carried out by "force account" – the workers were all employed "in-house" and rapidly became "permanent and pensionable". For a variety of reasons this system became extremely inefficient. When the KRARP was initiated in the 1974, it was decided that the workers should be employed on the basis of an individual monthly contract.

The initial *slow pace* of construction on the KRARP suggests that for a successful programme, time is needed to address important issues like institutional, technical, organisational and general management. Expansion at a reasonable rate after the pilot phase is possible so far as correct training, funding, and planning have been carried out (McCutcheon and Quainoo, 2005).

In sum, the KRARP owes its success largely to good preparation, adoption of a programme approach to poverty alleviation, relevant and adequate training, commitment (in terms of financial and political supports), and sound management.

Like any other successful projects or programmes, KRARP had its own problems. Analysis indicated that the Kenyan Rural Access Roads Programme was adversely affected by intellectual and analytical shortcomings, technical miscalculations, administrative and management realities, and political interventions (McCutcheon and Quainoo, 2005).

In 1986 the World Bank (the International Bank for Reconstruction and Development) published its completion report on its section of the funding of KRARP. It concluded:

Considering the institution building requirement, the staffing and related training need, administration and supervision required for the size of the programme, this has been one of the most successful donor-financed programs in Kenya and one of the best organized labour-intensive road construction programs anywhere.

In the mid-1980s it was decided that the labour-intensive methods used for the access roads should be used for a higher standard of roads in the CDE roads or Minor Roads. At that time, the Minor Roads were still being ineffectively maintained by "force account". It was also intended that greater use should be made of small contractors.

Given the high wage-bill and lack of sustainable revenue to pay workers, the structural adjustment programme, and donor demands in the 1980s, there was a big push for privatisation to adopt a small contractor system. A shift from force account / individual contracts to the use of small contracting companies implied retrenchment of a large pool of trained personnel and technicians in Public Works Department. A pilot project implemented in two districts was preceded by a study and analysis of existing road maintenance status quo, commissioned by the Kenyan Government (Ministry of Roads and Public Works, 2001). The study identified the following principal problems: (i) unavailability of sufficient funds for road maintenance; (ii) inadequate plant management due to lack of maintenance funds; and (iii) unsatisfactory execution of field work because of reliance on permanent staff and force account operations, and (iv) lack of rational planning, reporting and monitoring procedures.

The MRP therefore adopted small contracting approach compared with individual contracts under the KRARP. The former established an efficient routine maintenance system fully funded by the government of Kenya but was limited to routine maintenance (neglecting major maintenance due to lack of sustainable source of funding.) Major achievements include an improvement of over

45,000 km of minor and secondary roads; maintenance of rural access roads; training of 23 contractors; creation of 2500 – 3000 man-days of employment per kilometre of gravelling and roads improvements (Ministry of Roads, Public Works and Housing, 2004), and an establishment of a labour-intensive training centre to address all training needs of the programme at national, regional, contractor and supervisory levels.

Out of the 23 contractors trained, only 25% survived after five years. Submission of unrealistic tenders was commonplace (Karanja, 2006). One reason for the unsatisfactory results was absence of government policy to keep trained-contractors continuously engaged. Tenders were not specified as employment-intensive works only; they continued to be capital-intensive (Ibid). However, donor funding was stopped because of corruption, widespread procurement fraud, absence of efficient public sector financial management and accountability, lack of transparency, lack of good governance and institutional decay; and without sustainable development revenue for new investments, the withdrawal had serious implications for road maintenance: only routine maintenance was carried out, there was no major maintenance work (Muthua, 2006). This raises questions about the sustainability of labour-intensive programmes once donor funding is withdrawn. For successful employment-intensive infrastructure programmes, therefore, governments need to commit adequate financial support.

The MRP was not as successfully as the KRARP partly because lessons learned from the KRARP were not factored into design and implementation of the programme (Muthua, 2006). Difficulties with timely procurement of equipment and administrative challenges

associated with release of funds from headquarters to district levels, experienced under KRARP, remained persistent even in the Minor Roads Programme. In addition, MRP experienced higher costs per kilometre of road maintained without commensurate improvement in standard due to inadequate supervision, monitoring, and inappropriate material selection. And it drifted away from the use of highly labour-intensive methods.

By 2000, Kenya's road network was in a bad condition. Reasons for the dismal performance were identified as principally lack of adequate maintenance policy, inadequate finance and absence of a coherent institutional framework (Kilby, 2003). The goal of Roads-2000 was to extend labour-based approach to maintaining the entire road network by 2000 (Ministry of Roads and Public Works, 2001) using a contracting approach. Implementation of the strategy would be funded from the Roads Maintenance fuel levy. Analysis indicated there were no contracts; only a force account system which is unsustainable was used (Muthua, 2006).

2.2 Ghana Feeder Roads Labour-intensive programme

The Ghana Feeder Roads programme began in the 1980s, but unlike Kenya, Ghana started with a contracting approach by training small contractors. Fifty-four trained contractors were equipped for rehabilitation works to the value of $150,000 payable over four years, and a monthly instalment deducted at source from contractor's claims (Ashong, 1996). At the end of the pilot programme in Phases One and Two, the following had been achieved (Ashong, 1996): the programme had constructed over 1400 km of road and drainage systems; trained over 93 small-contractors with approximately 60% fully equipped for rehabilitation work, 380 contractors' supervisors, more than 160 programme staff (Ashong, 1998) and generated over 4 million worker-days of employment (Oduro-Kwarteng, 1996). General Certificate of Education (GCE) "O"- level was set as threshold entry level for trainees (Abban, 2002).

Starting with a total feeder road network of 22,000 km in 1986, the figure increased to 32,600 km in 2003 (Department of Feeder Roads, 2003), then 41039 km of feeder road in 2005 (Government of Ghana, 2006). Furthermore, over a period of fifteen years, Ghana has been able to reduce the poverty level from over 50% to less than 30% (Bogetic et al, 2007), an achievement hailed by the World Bank as a relatively good record of poverty reduction (Coulombe and McKay, 2003). Analysis indicated that the programme created approximately 15 times more jobs per kilometre than conventional methods executing similar works to comparable quality standards; and wages accounted for about 40% of total project costs (Stock, 1996) translating into 320% more employment (Tajgman and de Veen, 1998). In financial terms, employment-intensive methods were on the average cheaper per kilometre compared with conventional machine-intensive methods; even on earthworks, feeder roads employment-intensive construction methods were 30% lower (Taylor, 1998).

Despite the successful attempt in labour-based contractor development, programme environment and management-related problems subdued the programme. These include:

(i) unfavourable loan repayment criteria and difficulties faced by most contractors (Ashong,1998); (ii) introduction of competitive bidding by donor agencies for labour-based road contracts which favoured equipment-based contractors and not labour-based small-contractors; (iii) late payments and associated problems (Stiedl and Tajgman, 2003); (iv) once successful, the remaining few small-scale contractors chose to become equipment-based contractors.

Other problems that contributed to the demise of the Ghana programme were (iv) rapid decentralisation without the necessary programme staff to manage, supervise and administer the contracts; (v) difficulties in retention of staff, coupled with cash-flow problems and lack of continuity of work; and (vii) inadequate contract management, lack of commitment, and loss of programme vision due to change of government (Taylor, 1996).

2.3 The Botswana labour-intensive programme

In Botswana, two main employment-intensive programmes have been implemented since 1970s: namely LG 34 and LG117 (Muatjetjeja, 2006). The first was highly successfully largely because of strict adherence to the principles and practice of labour-intensive construction (McCutcheon, 1991b), and was employing over 3 200 casual labourers at its peak through force account; while the second, an amalgamation of LG 34 and LG 38, produced mixed results largely due to the hybridisation (Muatjetjeja, 2007). LG34 received both foreign and local funding, the former being disproportionately higher. Results of the pilot project demonstrated the technical feasibility and economic efficiency of labour-intensive construction methods. From inception through the merger with LG38 under LG117, the programme constructed over 1820km of quality maintainable road and employed over 7000 causal labourers.

Major conclusions drawn from the lead-in pilot project were documented by an ILO evaluation team (Watkins, Guthrie, and Ruud, 1986); and by any standard and cost-effectiveness, labour-intensive construction methods were comparable to conventional methods. LG34 programme was a huge success with considerable good practices for governments and development planners and engineers. Reasons for success include initial political and financial supports, good preparation, good site management and extensive training.

Botswana became *rich*, with a GDP per capita reaching the middle-income bracket; the client pursued wage differential policy rendering labour-intensive construction unattractive; showed lack of commitment; consequently, donor agencies withdrew their support leading to its collapse (Muatjetjeja, 2006). Technically Botswana was categorised as middle-income country, but unemployment is still one of the highest amongst such economies (IMF, 2007). In addition, the mineral sector is capital-intensive offering little employment potential (World Bank, 1993). Equally, the thin economic base of Botswana should rather encourage the government to seriously reconsider employment-intensive methods and upscale it in fighting at least rural poverty through infrastructure development (IMF, 2007).

Second, inability to localise key positions at the closure of the programme was a serious threat to its technical sustainability (McCutcheon, 1991; Muatjetjeja, 2006). Programme evaluation indicated that all key positions were headed by expatriates, with the exception of instructors of site supervisors' on-site training. Thus, knowledge management including succession issues was largely ignored.

Third, the amalgamation of LG34 – a labour-intensive programme that involves good preparatory work – with LG38 – essentially a drought-relief programme which is an emergency response to crisis associated with little training in labour-intensive methods if any, poor productivity and high worker absenteeism (Tajgman and de Veen, 1998) – was a serious mistake. In particular, there were reports of sub-standard products and general inefficiencies after the merger (Muatjetjeja, 2006). For economic efficiency and quality of product, therefore, every effort must be made to define and uncouple employment-intensive programmes and emergency relief programmes.

Field visits and personal communications conducted revealed an element of poor knowledge management and institutional memory loss particularly with regard to LG34 and LG117 employment-intensive programmes. Specifically, reporting systems were poor, information scanty and scattered. This has serious implications for managing development programmes. First, good practices and lessons for future programmes would be inaccessible. In effect, the wheel must be reinvented each time similar interventions are initiated; this impacts on programme duration, budget and effort that could be expended elsewhere within the programme. Second, without well-documented, archived and easily retrievable programme information, improvement in design, construction and management of similar future programmes is minimal. Additionally, it defeats the aims and objectives of programme evaluation, and casts doubts about commitment of the main LG34 stakeholders.

Comparison of current employment-intensive programmes in Botswana with the stand-alone LG34 programme in the 1970s and 1980s indicate that lessons learnt were never incorporated into their planning, design, construction and management (Muatjetjeja, 2007).

Despite the apparent problems and shortcomings, different evaluations about LG34 and developments under LG117 indicate that in general, the programmes achieved most of their objectives with good quality standard of maintainable roads constructed (Austveg, Nkwe and Ystehede, 1995, cited in Mayer and Kayira, 1997).

2.4 The Lesotho Labour-intensive construction programme

High levels of unemployment and lack of rural accessibility together with mass retrenchment of *Basotho* people working in South African mines in the 1970s and 1980s prompted the Government of Lesotho (GOL) to rethink its developmental efforts (Pama, 1999:151; Stiedl et al, 1997:9). Higher economic growth rates between the 1980s and 1990s could not translate into commensurate growth in employment (United Nations, 2007:5). Therefore to ease unemployment, poverty and kick-start the rural economy, the GOL identified feeder roads upgrading and construction, and maintenance of airstrips, as a precursor to improving the quality of life. Hence the birth of the Lesotho Labour Construction Unit (LCU), established with the overarching objective of rural road construction and unemployment reduction.

At the initial stages in 1977, LCU experienced institutional problems and lack of legitimacy before final establishment as a genuine government department under the Ministry of Works (MOW) Road Department. Success of the LCU programme could be attributed to a number of complementary factors. Among these are the following (Kingdom of Lesotho, 2000):

(a) LCU received strong commitment in terms of political support and adequate resources from both government and donors;

(b) Early investment in research and training culminating in well-trained manpower;

(c) Use of local labour and technical skills to produce a technically sound and cost-effective road network even under difficult terrain conditions;

(d) Adoption of a long-term (20 year) plan for the labour-intensive programme;

(e) The establishment of a training centre in the 1990s for the training of programme staff, and later contractors;

(f) A good balance between number of casual labourers and programme staff (a ratio of about 6:1) indicative of close or adequate supervision.

There was mounting pressure on LCU and Government of Lesotho to shift from force-account to contracting (Ntoi, 2007). Therefore following the ILO study commissioned by GOL and supported by SIDA in 1989, the GOL eventually decided to embark upon a 20-year development plan in 1990 but with emphasis on contractor development (Stiedl et al, 1997:17, 41).

The contracting programme had two clear objectives (McCutcheon, 1989) with embedded phased training plans (Pama, 1999:152-153; Bentall, 1999:28). These were:

(i) to establish a domestic pool of small-scale contractors to undertake labour-based road maintenance and regravelling;

(ii) to establish a system of administration and financial procedures for public works contracts and allow contractors trained in labour-based road maintenance and regravelling to tender for jobs on competitive bidding basis.

Allied objectives for the contractor development programme were as follows (Andreski et al, 2006:17):

(iii) to strengthen the institutional capacity of Department of Rural Roads (DRR) to manage the contractor training programme effectively and efficiently; and
(iv) to strengthen the capacity of contractors through training of their staff.

The third objective was important for poverty alleviation, local capacity building and efficiency improvement (World Bank, 2004b). However in alignment with employment policy of reaching a wider unemployed mass, road upgrading programme could only offer jobs on rotational basis (Business Support Southern Africa, 2004:21).

Reformulation in 1989 resulted in LCU being given responsibility to upgrade and maintain 2 500 km of feeder roads (Marshall, 1990:10), and by the end of 1992, the LCU had constructed 2200 km of road, and created over 23 000 person –years of employment (McCutcheon, 1989). A small contractor development approach to labour intensive road construction commenced in 1993.

By 2000, the LCU had merged with Civil Works Section (CWS) and rebranded as DRR (Kingdom of Lesotho, 2000). In addition, the GOL adopted a long-term labour-intensive road construction plan (20 years) to service 2000 km of road by the year 2010. Generally, achievements have been significant despite the financial constraints, capacity limitations and other problems.

A major challenge to the implementation of the 20-year expanded programme was insufficient capacity; LCU therefore adopted a three-pronged strategy to overcome the situation (Pama, 2000): (i) training and development of small scale contractors to execute all maintenance and rehabilitation road works; (ii) increasing force-account teams by training more supervisors; and (iii) strengthening in-house capacity by orientation and employment of local consultants. According to Pama (1999:155) and Seth (2004:2) local consultants carried out several responsibilities including (i) training of LCU technical staff and contractors; (ii) survey and design of selected routes for labour-based road construction; (iii) preparation of bill of quantities, contract documentation, invitation of bids, tender evaluation and recommendation for tender awards; (iv) contract administration on behalf of LCU, including mentoring performance of trained small-scale contractors.

For the trial contracts, contractors were provided with basic construction equipment worth US$6670 payable over the six-month contract duration (Larcher, 2001:3). Further equipment acquisition by the trained contractors was achieved through direct purchase or indirect

procurement (lease financing arrangement) with a one-year payback period (Bentall, Beusch, and de Veen, 1999:101). Contracting and force account system were used in tandem for road construction, upgrading and maintenance (Stiedl et al, 1997:41). Not only were all trained contractors offered routine maintenance and regravelling work through the ballot system or non-competitive bidding but in addition qualified contractors were allowed to bid competitively for road earthworks contracts (Seth, 2004:2).

The World Bank rates the contractor programme as relevant, effective and efficient with several objectives met and in some instances exceeding targets (World Bank, 2006:9). Contractors were trained in road maintenance activities, and were responsible for capacitating their own site agents (Bentall, 1999:28). Prior to the contractor development initiative, no Basotho owned road construction or maintenance companies (Stiedl et al, 1997:18). By 1997, 24 contractors had been trained for road maintenance and re-gravelling (Ibid, p39). The number of contractors trained, according to the World Bank (World Bank, 2004:6), under DRR alone increased to sixty-five (65) in mid-2004 (which was 100% achievement). In addition, 24 contractors from South Africa (Limpopo Province) had been trained by 2004 (Seth, 2004:2). By 2006, the programme had trained 105 contractors to execute various labour-intensive road works (Andreski et al, 2006:17).

A high standard of road construction was achieved despite the difficult terrain in Lesotho. Comparative analysis in 1995 indicated that conventional methods of construction in Lesotho were 37% more expensive than employment-intensive construction notwithstanding the high daily wage rate of US$ 4.90 (Tajgman and de Veen, 1998: 15). By 2006, it had generated over 4000 temporary jobs (Andreski et al, 2006:17). In accordance with DRR rotational employment policy, labourers worked for a maximum length of 3 to 4 months (Business Support Southern Africa (BSSA), 2004:21).

Achievements highlighted above demonstrate the practical implementation of contractor development programmes to execute road maintenance works (Ibid). BSSA cites the reasons for the success to include (i) long-term technical assistance; (ii) adequate attention to selection and mentoring of local staff; (iii) use of methods specification for achieving quality of labour-based work; (iv) gradual award of contracts of increasing complexity, conditional upon performance and capacity of contractor; and (v) appropriate packaging of work contracts. The latter, according to Andreski et al (2006:17), serves a dual purpose of effective contract management by the client while simultaneously enabling the contractors to develop the requisite learning curves.

Despite harsh realities and successful demonstration that force account system may arguably work under certain circumstances, the two programmes had a number of deficiencies which would require serious attention for improvement in future programme design and performance. LCU problems include:

(i) Lack of adequate and readily available funding and the cumulative effect on unemployment (Andreski et al, 2006:17);

(ii) Insufficient due consideration for economics in programme delivery (Stiedl et al, 1997:6);

(iii) Lack of clarity in government policy and commitment for programme expansion after the successful pilot phase in 1980, perhaps because of political pressure to deliver (Ibid:15; Edmond, undated:9);

(v) Initial institutionalisation problem coupled with lack of recognition (Marshall, 1990:8-9; Edmond, undated:12). In particular, lines of reporting were ill-defined and LCU had no permanent status within government; without assured source of funding, the unit had to depend on individual projects on ad-hoc basis and short-term planning horizons which were largely unsustainable;

(vi) Institutional weaknesses - LCU was plagued by shortage of qualified local programme staff resulting in foreign-expatriate or consultancy syndrome, and therefore lacked the credibility and capability to promote labour-based policy at the highest tiers of government (Stiedl et al, 1997:15-8);

(vii) Failure to achieve the long-term aim of providing significant degree of employment to returning migrant workers from South Africa, partly due to inaction from government decision-makers regarding policy formulation (Stiedl et al, 1997:2-3). According to the authors, decision-makers failed to instruct government agencies to adopt employment-intensive construction technology, thereby losing potential employment generation, indicative of lack of coherent high-level commitment in the 1980s.

(viii) Delayed maintenance resulting in huge backlog and rapid deterioration of infrastructural assets, placing undue burden on already scarce and overstretched programme funding (Stiedl et al, 1997:20; Edmond, undated:12).

A host of problems and challenges continued to plague LCU even during the DRR contractor development programme. Major unresolved issues in 1999 remained insufficient institutional capacity and inadequate budget which made additional responsibilities difficult to execute (World Bank, 2001:7; 2004:2; 2006:1; African Development Fund, 2000:9). To reduce the design and supervision burden, LCU resorted to orientating and using local consultants, and training more force-account technicians (Pama, 1999:154). Another challenge is how to deal with the increasing *casualisation* of labour (BSSA, 2004:21) – a characteristic feature of most labour-based programmes.

Other problems were serious start-up implementation delays attributed to administrative inaction and inadequate capacity in the LCU (World Bank, 2004b:3); poor inter-agency coordination, inadequate counter-funding, project time-overruns, delays in staff training and slow disbursements of project funds due to lack of capacity (World Bank, 2004b:5; 2006:ix, 5); low level of women participation (about 16%) despite conclusive evidence about comparable levels of productivity as their male counterparts, probably because of no definite recruitment policy (Stiedl et al, 1977:29); no guarantee of work continuity for trained contractors (Bentall, 1999:28); and excessive routine maintenance costs with unsatisfactory quality of work. However, this could be attributed in part to inadequate contract management and administration by the LCU.

Despite the deficiencies, the Lesotho programme has demonstrated the technical feasibility and financial competitiveness of labour-intensive construction methods for poverty reduction through rural road infrastructure provision. The significance of the S-curve in relation to productivity and number of employment generated per unit time (in years), particularly the initial slow build-up to allow for good preparation, must be clearly understood by all

stakeholders including politicians if success and sustainable results were to be achieved in any employment-intensive programmes. Political pressure to deliver and fast-track development programmes would almost invariably lead to undesirable implementation problems and thereby prevent them from achieving intended objectives.

3 Findings from the five sub-Saharan experiences

Results and analyses of labour-intensive infrastructure programmes from Kenya, Botswana, Ghana and Lesotho demonstrate that:

(a) Given adequate resources, human capital, government support and adequate preparation, (i) a high standard of construction could be achieved even under difficult terrains, and (ii) significant additional employment per unit of expenditure could be generated cost-effectively.

(b) Adoption of a programme approach to poverty alleviation through rural infrastructure development cannot be overemphasised since there is no quick fix, short timeframe for significant poverty reduction, and capacity development. A considerable timeframe is required. Given the complexity of employment-intensive infrastructure programmes, sufficient lead-in time is needed to sort out institutional, technical, training, organisational, administrative and general management issues prior to seeing tangible results on the ground.

(c) Compared to the initial large-scale labour-intensive infrastructure programmes in the 1980s which attracted strong financial support and technical assistance, current programmes fall short of expectation in terms of planning, implementation procedures and technical efficiencies. Programmes have produced mixed results due to lack of adequate, reliable funding, inadequate preparation or corrupt practices in the procurement process. Commitment by government and provision of own funding therefore would play pivotal role in labour-intensive and poverty alleviation programmes.

(d) Generally, attempts to shift completely from force-account to contracting have either been partially successful or a failure. Problems range from technical and managerial inadequacies on the part of the small contractor to insufficient contract administration and breach of contractual obligations (or late payment) by the client. In some instances, however, force-account and contracting systems were used in tandem because of lack of client capacity.

(e) Successful decentralisation of programmes in several countries failed due to capacity challenges and resource constraints. Programme expansion or decentralisation should therefore give due considerations to capabilities and resources available.

(f) Government commitment and policy direction for employment creation (including training and capacity development) are indispensable in poverty alleviation.

(g) Data was difficult to obtain due to institutional memory loss: lack of systematic documentation of programmes/projects undertaken, and loss of good practices and general lessons learned. Where institutional memory loss occurred, some training

resources had to be reinvented thereby exerting unnecessary pressure on available limited resources. Recording, reporting and knowledge management of best practices need serious attention for future programmes.

4. Conclusion and recommendations

Deriving from foregoing discussions, the following conclusions and recommendations may be drawn:

1. Success of labour-intensive, poverty alleviation programmes depends largely on government commitment to succeed, adequate preparation, sufficient resources, and requisite capacity. Local/government funding is crucial to the sustainability of employment-intensive approaches to infrastructure provision. Donor funding should only be regarded as a *bonus*.

2. Attempts to outsource employment-intensive road construction programmes through small-scale contracting would continue to produce mixed results unless both contractors and the clients are adequately prepared and committed to honour their contractual obligations. In particular, technical, managerial and contract administrative capacities should be strengthened to meet the new challenges resulting from changes in method of infrastructure delivery.

3. The need for a Programme Champion for employment-intensive and poverty alleviation programmes to foster commitment to succeed needs meticulous consideration.

4. Evaluation must be institutionalised and strengthened as an integral component of every employment-intensive infrastructure programme for two reasons: (a) to improve future programme performance; and (b) to pre-empt institutional memory loss and rather build on existing knowledge. Equally, no similar future programmes should be permitted to proceed without having factored in lessons from previous programmes.

5. Policy instruments should be made available to ensure guaranteed work. A good enabling environment should be created for trained small contractors to survive and accumulate requisite experience. Change from force account system to contracting demands a shared responsibility. Small contractor development is complex and requires serious attention.

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[1] HA Quainoo is a Lecturer at the School of Construction Economics and Management, University of the Witwatersrand, South Africa, and a PhD student studying under Professor RT McCutcheon at the School of Civil & Environmental Engineering, WITS University.

[2] RT McCutcheon is Professor Emeritus of Civil and Environmental Engineering at the University of the Witwatersrand, South Africa, and also Director of the WORK Research Centre for Employment Creation in Construction located within the School of Civil Engineering at WITS University.