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A Critique of the EPWP Infrastructure Sector – Part 3 Conclusions and Recommendations

This is the last article in a three-part series focusing on the context and framework of modern labour-intensive construction in South African public works programmes, bearing the Infrastructure Sector of the Expanded Public Works Programme (EPWP) 2004/05 to 2013/14 in mind. Parts 1 and 2 of this series were published in the May and June 2018 editions of *Civil Engineering*.

PROGRESS AND POTENTIAL IN SOUTH AFRICA

The extent to which the Infrastructure Sector of the EPWP has failed to achieve its objectives makes for depressing reading. This is especially the case given the positive factors regarding the potential for the greater use of 'modern labour-intensive construction' in South Africa.

However, the following positive factors should be borne in mind and viewed as a platform upon which to enable a future Public Employment Programme with an infrastructure component to achieve its full potential.

Over the past 30 years in South Africa considerable progress has been made in relation to the creation of an enabling environment for labour-intensive construction. These include:

- During the 1980s and 1990s innovative projects were carried out using modern labour-intensive methods. Of particular note is the work carried out under the auspices of the Valley Trust in KwaZulu-Natal (Mann and Little), at Ilinge in the Eastern Cape (Croswell), and at Mohlaletse in Greater Sekhukhune (Donaldson Trust, Universities of the Witwatersrand and Twente).
- Considerable research and field experimentation in South Africa (by Gertzen, Hattingh and van Steenderen among others¹) have demonstrated *in depth* that labour-intensive methods can be used for a wide range of high-standard infrastructure, as argued by the World Bank in the 1970s and 1980s.
- Across a wide range of building and infrastructure categories there are now guidelines and background material for design and contract documentation, including specifications and contract clauses.
- Training material and detailed courses have been developed and approved. Any thought of recreating the training content would appear to be completely inappropriate and a waste of public money.
- Policy: The National Public Works Programme was initiated in 1994, and modified in 2004 to become the Expanded Public Works Programme, which entered its third five-year phase in April 2014.
- Policy: The horizon for the National Development Plan is 2030, which leaves a sufficient time-frame to do something sensible.
- Policy: Public Employment Programmes are included in the National Development Plan. The EPWP is mentioned as an example of a Public Employment Programme.
- In particular, the principle regarding the use of labour-intensive methods remains at the core of the formulation of EPWP's Infrastructure Sector. As shown in Part 2 of this series, the wording of the Objective of Phase 3 is itself of critical importance. The term 'labour-intensive' is included in the goal of EPWP Phase Three, which therefore aligns it with legislation.
- Appropriate legislation and regulations have been put in place. In particular: Amendments to the Basic Conditions of Employment Act were introduced in 2002, repeated in 2013 with compulsory linkages to the Division of Revenue Act since 2004/05 (the wording in the legislation is in accordance with that used in the EPWP documentation).
- Considerable funding was allocated to the first two EPWP Phases and has been budgeted for Phase Three.
- There is an EPWP Unit in the National DPW, together with a framework for implementation. The institution is staffed

at national, provincial and local municipality levels. The importance of this institutional establishment must not be underestimated.²

- SANRAL (South African National Roads Agency Limited) is preparing new specifications for labour-intensive construction. This is extremely important.
- Appropriate curricula for training have been established. Accredited courses have been developed at NQF2, 4, 5 and 7 levels.
- A small-scale linked Programme of Training and Construction has been implemented in a deep-rural area.

MAJOR CONCLUSIONS

This set of articles focused on the results in the Infrastructure Sector for three main reasons:

- It is the sector for which a significant increase in employment can be created per unit of expenditure through the reverse substitution of labour for equipment.
- It is the component of the EPWP which does not require additional state expenditure, because the funding is already allocated for expenditure on infrastructure.
- It has been by far the largest sector in both allocation and expenditure.

There are some reasons for being positive about the Infrastructure Sector of future Public Works Programmes in South Africa. The following are in place: general and specific policy at national, provincial and local levels; appropriate legislation; various guidelines; training material; and the establishment of an institutional framework for implementation at national, provincial and local authority levels (however flawed). In particular, at least in principle, the use of labour-intensive methods remains at the core of EPWP's Infrastructure Sector.

However, despite all these 'good things', to date the Infrastructure Sector of the Programme has not resulted in the envisaged skills development or a significant increase in employment per unit of expenditure.

This set of articles investigated the effectiveness of the EPWP in relation to labour-intensity and the implications thereof for employment and wages. It revealed serious inadequacies with regard to labour-intensity: 10% instead of a minimum of 30%. The Full Time Equivalents (FTEs) amounted to 781 433 and wages to R13 007 million. At 30% labour-intensity, FTEs would have risen to 2 321 888 and wages to R38 634 million.

Therefore, there is scope for a considerable *increase in employment generated per unit of expenditure than has been achieved to date*.

The author has discussed a range of reasons for the shortcomings. If the shortcomings are not addressed, the objectives of the Third Phase will be seriously threatened.

While this study has revealed serious inadequacies with regard to labour-intensity, it has revealed something very important, namely the serious inability of the current authorities to spend the funds allocated to them. Thus, the investigation has revealed the enormous shortfall between allocation and expenditure, and the implications of that shortfall for employment and wages. There has thus been *a very important side result of this investigation into labour-intensity: not merely the public sector's well-known incapacity to spend its allocations, but the extent of the public sector's inability to spend its allocations*.

In these articles the author has shown that the numbers employed were 781 433 (FTEs), whereas at 30% these should have been 2 321 888. Similarly, wages would have moved from R13 007 million to R38 634 million. If the funds *allocated* had been spent at *even the low levels* of labour-intensity (10%), FTEs would have amounted to 3 300 870, and wages to R54 943 million. If proper labour-intensive methods had been employed, we could have seen of the order of 9 807 944 years of employment generated, which is of the order of one million FTEs for each year (wages: R162 742 million). Also, importantly, large numbers of matric-level *hands-on site supervisors* would have been trained.

Given the central importance emphasised above, of the extensive training which is required for the transformation of the industry, the following is of *critical* importance:

In the original June 2004 Consolidated Programme Overview and Logical Framework it was stated that a National Training Centre would be established. This had still not happened by the end of Phase Two, ten years after the commencement of the EPWP.

The author's research and experience in relation to labour-intensive construction has led him to consider it as still a sensible way to proceed. However, one has to accept that the process of re-engineering the industry is *far more complex than anticipated*.³ We live in a post-modern era where emotion and opinion trump fact and reason.

RECOMMENDATIONS 1: SOUTH AFRICA TO SOUTH AFRICA REGARDING FUTURE PUBLIC WORKS PROGRAMMES

At least in relation to the Infrastructure Sector we need to return to an original objective: the construction and maintenance of much needed public sector infrastructure and building, with a positive socio-economic spinoff in terms of skills development and employment creation, using existing budgetary allocations (*not* add-ons).

The EPWP needs to be revamped and realigned towards these original technical and physical objectives. There must be a reduction in the over-emphasis on collecting ID numbers and days worked.⁴

While the framework exists (policy, legislation and an institutional framework), the public sector client must be orientated to understand the principles and the potential (how much more could be achieved) and decide to implement government policy properly.

Regarding the main approach adopted

The severe difficulties experienced to date regarding the use of small contractors suggest that both policies and procedures need to be changed. One cannot continue to blame the contractors who have failed to perform properly, when they should not have been selected and appointed in the first place. The whole question of small contractor development is being investigated and analysed.

Contractor Development programmes have not been as effective as anticipated.⁵ This is partly because current policy and procedures are deeply flawed. Until recently the emphasis has

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been on the money. For tenders less than R400 000 no qualifications or construction experience are required, which means they are just labour-only sub-contractors, barely indistinguishable from labour-brokers. Indeed labour-intensive methods lower the barrier for entry, which is part of its original rationale. Then, perversely and ironically, small contractors demand heavy equipment and on-site training, which defeats the object of the exercise.

Can this approach really be taken seriously?

Emphasis on the use of small contractors is unlikely to diminish. Therefore serious attention needs to be paid to a proper Contractor Development programme, with the type of thoroughness exemplified by Kenya, Botswana and Lesotho in relation to the rigorous training of single- and multi-site supervisors.

The new approach should include three components: establish an in-house capacity, formally establish a long-term Programme, and formally link training to construction and maintenance.

Modelled on experience elsewhere in sub-Saharan Africa, public sector works institutions (national, provincial and local) should establish an in-house capacity in the agencies responsible for public building and infrastructure so that a component of the demand can be met by **instruction** rather than by **contract** (particularly until systems have been established). All of the major metropolitan municipalities could have such programmes. Smaller urban and rural municipalities could coordinate in relation to the production of the human resources required to implement this work. Linkages with TVET (Technical and Vocational Education and Training, formerly FET) colleges should be established. Although the focus here is on labour-intensive work, the author recommends that this approach be used for the training and employment of all the artisanal skills required for building and infrastructure, including bricklayers, plasterers, plumbers, electricians, tilers, painters, roofers, glaziers, concrete operatives and so forth. Each artisan generates employment for less-skilled people.

Municipalities and other public bodies should set up proper long-term programmes, and implement these by **instruction** rather than the cumbersome and ineffective intermediary action of contracts and contractors (for whom the immediate need to run a successful, i.e. profitable, business is more important than skills development and employment creation, no matter how important the latter are to government).

As a start the model used in Greater Sekhukhune should be adopted. First train hands-on single-site supervisors (NQF4) – a minimum of 18 months of class and site training. Out of these select people who might benefit from training to become multi-site supervisors, which would provide a platform for potential development as contractors. There is no short-cut. Establish an

integrally linked training and construction programme. These skills development and employment programmes will produce the human resources required to implement the programmes.

Mandatory conditions stipulated in DORA (Division of Revenue Act) regarding specific categories of infrastructure should be enforced.

New guidelines need to be reincorporated in some of the functionally important provisos which appeared in earlier versions.

In summary

The following are required to realise the potential: thorough re-engineering, in-depth training, systematic programmes linking training with construction and maintenance of public building and infrastructure. The establishment of such coordinated construction and training programmes should result in an in-house capacity able to implement projects and monitor and evaluate outsourced contracts.

Comment

In the policy discussions, the author has emphasised the essential skills development component. There is a direct link between skills development and employment creation. Speaking generally, any skilled artisan generates work opportunities around him/her for unskilled people; besides gaining an income, such people then get closer to opportunities where they can improve their skills. Focusing on the potential within the construction industry for a “significant increase in employment per unit of expenditure”, this significant increase will only take place once the hands-on site supervisors have been thoroughly trained. In Kenya and Botswana the relevant Ministries/Departments established specific training courses within their national training centres, and graduates were formally incorporated into the national construction and maintenance programmes.

RECOMMENDATIONS 2: SOUTH AFRICA TO ELSEWHERE IN AFRICA REGARDING FUTURE PUBLIC WORKS PROGRAMMES

Research and field implementation in South Africa demonstrated that potential and scope encompass far more than low-cost, low-volume roads. This research reconfirmed the findings of the World Bank’s study. It is, indeed, technically feasible across a wide range of civil construction and can result in the same quality of product. Under properly conceived, designed and well-managed circumstances, it can be economically efficient and even cost-competitive with conventional construction. High-standard, major civil construction *can* be provided using labour-intensive methods, and contractors *could* play a greater role in implementation.

To date, implementation in South Africa and elsewhere in sub-Saharan Africa, has followed two main routes:

- Direct implementation through the establishment of in-house capacity within the public sector institution responsible for public infrastructure. This has been without intermediary consultants and contractors. The construction of the infrastructure has been formally linked to training. The mode of operation has been via **instruction**.⁶
- A public sector institution has been responsible for works/roads. Implementation has been through the medium of the **contract** and **contractors**.

The first route was successfully adopted in Kenya, Botswana, Malawi and Lesotho.

In South Africa both the NPWP and the EPWP chose to adopt the second route, namely *contract* and *contractor*. Above we have argued, and provided evidence for the argument, that this second route has not been as successful for large-scale construction over the long-term.⁷ There has been reported success in relation to maintenance. But the foundation for successful maintenance contractors was laid by the thorough training and experience gained during the Construction Phases.⁸

Therefore, the major recommendation for elsewhere in Africa is “replicate what you have done in the past”, with particular reference to Kenya, Botswana and Lesotho.

Hence the author’s major recommendation for both South Africa and elsewhere in Africa is as follows:

For large-scale, long-term implementation establish linked training and construction programmes. Where possible establish an in-house capacity within the public sector authority and operate through **instruction**.⁹

Despite the author’s confidence regarding this approach, it is expected that the push to implement using contractors (and therefore the contract) will be as powerful elsewhere as it is in South Africa. Under these circumstances it is recommended that the following lessons should be learnt from the South African experience:

- At *project* level:
 - Under current conditions the consultant has to re-engineer product and process. The amount of time, effort and commitment required must not be underestimated.
 - The contractor must fulfil the demands of the contract (this is no different from any other civil engineering project). But this requires knowledge and experience on the part of the client, consultant and contractor to ensure that the design and contract documentation is correct.
 - The stipulations of contract must be enforced, just as they would be in the conventional construction industry.
- Please take note of all the difficulties outlined in the *Reasons for Failure* section in Part 2.
- Also take note of the author’s recommendations regarding the training of both hands-on single- and multi-site supervisors. These should form a component of any policy for Contractor Development, including training and pre-selection based on proven technical and organisation competence.

IN CONCLUSION

The Expanded Public Works Programme is one of the South African Government’s responses to the triple challenge of poverty, unemployment and inequality.

There is no immediate short-term solution (an income grant does not include skills development). However, there is a medium-term solution based on the establishment of programmes of skills training formally linked to the construction and maintenance of much needed (and demanded) public building and infrastructure. In South Africa this is at the front line of much dissatisfaction. Despite the appropriateness of modern labour-intensive construction, it is very difficult to achieve the potential, as it is not easy to change an existing socio-technical system.

In policy and legislation, obstacles have been surmounted: a framework exists, which includes policy, legislation and institutional components.

Various small-scale projects have been implemented and a great deal of research and implementation have been carried out, which have demonstrated that labour-intensive methods may be productively used for high-standard infrastructure, and therefore could be used within the major economy and not be restricted to the periphery (in relation to both geography and amount of expenditure). However, despite all these good things, to date the Infrastructure Sector of the EPWP has not been as effective as it should have been with regard to skills development and employment creation. In particular it has only achieved a labour-intensity of 10% instead of a minimum of 30%. If the shortcomings are not addressed there will be little improvement in future public works programmes. The public sector client must be orientated to understand the principles and the potential (how much more could be achieved), and decide to implement government policy properly.

More generally: Africa should re-learn lessons from its own successful past endeavours. Furthermore, South Africa has demonstrated that labour-intensive methods may be used for high-standard infrastructure.

South Africa’s National Development Plan envisaged that Public Employment Programmes would be needed until 2030. The main way forward for future Public Employment Programmes, would be the establishment of in-house programmes which formally link construction to the training of *the*

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missing middle, i.e. hands-on single- and multi-site supervisors, the more independently and entrepreneurially minded of whom could become small contractors.

Engineers have a clear role with respect to the physical components of high-quality public infrastructure. They could play a much greater role in relation to secondary socio-economic benefits of public expenditure during the normal provision of public infrastructure and building; in particular, skills development and employment creation. We have seen that engineers played a critical role in the development of productive methods of *modern labour-intensive construction*. They must continue to do so. Unfortunately, it is far less easy to define and measure socio-economic parameters than to define time, cost and quality.

Public funding is being used for the construction and maintenance of public infrastructure. It is reasonable that government should set criteria for the use of public funding.

However, the existing socio-technical system of the construction industry is based on the use of fuel-powered, heavy equipment. In the face of this fact, engineers have to perform extensive *re-engineering* of product and process in order to achieve socio-economic objectives. The time, effort and commitment required to execute this task must not be underestimated. Such being the case, it must be noted that it is simpler to introduce radically different techniques through *instruction* rather than *contract*. Here, this injunction applies directly to skills development and employment creation. It would also apply to any other of the current buzz words, such as community participation, small contractor development, sustainability, green building, women's empowerment and the upskilling of youth. These are so easy to add to the list of objectives, but above we have seen how difficult it is to actually make a significant difference.

Over twenty years ago the author wrote: "A public works programme should be aimed at fundamentally changing the way in which publicly funded infrastructure is built so that employment and skills transfer are maximised for the unemployed."

Work provides an income and contributes to personal and communal dignity. Where are there similar opportunities in the national economy to generate skills and employment

opportunities for the poor and unskilled, using money that has already been allocated for expenditure? □

REFERENCES

The list of references for the full set of articles is available from the author.

ACKNOWLEDGEMENTS

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NOTES

- 1 For other important authors see the full list of References (available from the author).
- 2 World Bank (1981): "No maintenance effort with which the Bank has been involved was foreseen and being of more than ten years duration. Yet none has taken less than ten years in practice."
- 3 McCutcheon, Hattingh and Crosswell 2007.
- 4 Apparently there are over 60 data capturers employed in this administrative 'activity'.
- 5 "(t)he overall success of CDPs is somewhat questionable." (CIDB, March 2009); and "Overall, most of the programmes have not performed as envisaged in the development of contractors." (CIDB, October 2011).
- 6 Of course, with due recourse to the law.
- 7 There was some progress in Ghana.
- 8 Recently it has been claimed that in Kenya it is now possible to use contractors effectively. But this has been clearly based on the systems and training originally provided during the large-scale public sector programme. Andreas Beusch to author, 23 September 2014.
- 9 Perhaps it is necessary to state: the form of instruction must be subject to the laws of the land regarding Conditions of Employment and Health and Welfare of the employees.

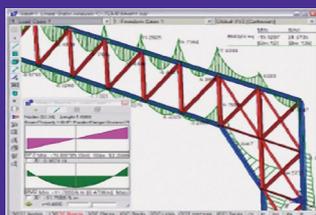


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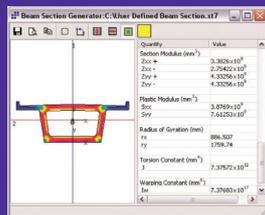


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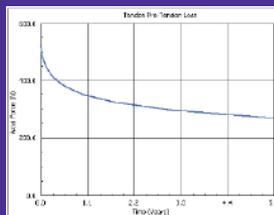
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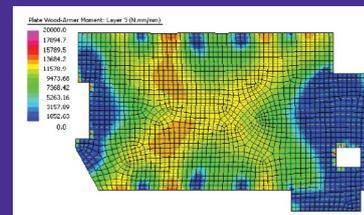
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