Co-operation and Development Projects: An African Perspective
HA Mofutho Footbridge at Quasha’s Nek, Lesotho

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Gerrit Visser, born 1968, received his Masters degree in Civil Engineering from the University of Stellenbosch, South Africa. He has over 20 years bridge experience and has been involved in numerous bridge projects, ranging from pedestrian bridges to road interchange bridges. Gerrit has a passion for the design of bridges and this has led to many project awards where he has been actively involved as the design specialist.

Summary
The Kingdom of Lesotho is faced with high levels of unemployment and poverty, especially in the rural areas. The local community at HA Mofutho near Quasha’s Nek (Lesotho, Africa) was separated from health clinics, markets and employment by the Senqu River. Royal HaskoningDHV was appointed by the Kingdom of Lesotho’s Ministry of Public Works and Transport and tasked with the design, and construction supervision of a footbridge to improve the lives of approximately 2,000 people affected by the costs and risks of crossing the Senqu River[1].

Sustainability was to be considered a high priority during the design, construction and maintenance phases, with the emphasis on the people component. In close co-operation with the client the following sustainable development opportunities were identified and realised through this project:

- Construction management skills were transferred to the Roads Directorate’s personnel,
- Road Directorate staff were trained in service on site supervision,
- Enterprise development: assisting the local contractor companies to improve their commercial and technical skill sets
- Employment and training of local labour.

The education, development and skills transfer that took place, together with co-operation and relationship-building with all major stakeholders will serve to equip the stakeholders and community to contribute significantly in future projects within the greater Lesotho area.

In recognition of this project’s contribution to co-operation and development, this footbridge was awarded the Walter Barnett Trophy (Overall Winner) and the Infrastructural and Community Development Category winner at the South African Hot Dip Galvanizing Awards 2013.

Keywords: footbridge; co-operation; development; skills transfer; job creation; community empowerment; African perspective.

1. Introduction
In the past, the outcomes of a civil engineering project were measured mostly on a technical basis. Now in the 21st century, it has become just as important for engineers to apply a more holistic approach to engineering - taking into consideration outcomes such as social impact and sustainability impact of the project [2].

The Lesotho Ministry of Public Works and Transport unveiled its ten-year strategic plan in July 2010, highlighting the goal of an efficient, effective, safe and well-developed transport network that promotes investment and reduces poverty [3].
This country’s government is focussed on investing in developing transport networks, particularly due to the fact that there is potential for important economic and social spin-offs:

- Road infrastructure helps to link economic sectors, such as manufacturing, to South Africa’s transport network - thereby strengthening investment;
- The construction of rural roads connects outlying communities to social services and economic opportunities, helping provide Small Medium and Micro Enterprises (SMME) with access to markets, both locally and in neighbouring South Africa, and impacting positively on income levels as well as reducing poverty in the country.

The Kingdom of Lesotho is faced with high levels of unemployment and poverty, especially in the rural areas. The local community at HAMofutho near Qasha’s Nek (Lesotho, Africa) was separated from health clinics, markets and employment by the Senqu River. Royal HaskoningDHV was appointed by the Kingdom of Lesotho’s Ministry of Public Works and Transport and tasked with the design, and construction supervision of a footbridge to improve the lives of approximately 2,000 people affected by the costs and risks of crossing the Senqu River.

Sustainability was to be considered a high priority during the design, construction and maintenance phases, with the emphasis on the people component.

Sustainability, as defined within the engineering context, refers to people, planet and profit (triple bottom line). People relates to fair and beneficial business practices toward labour, the community and region where corporation conducts its business. Planet refers to sustainable environmental practices. Profit is the economic value created by the organization after deducting the cost of all inputs, including the cost of the capital tied up.

Within the African context, the emphasis is more often skewed in the favour of the people component, due to poverty and the need for community upliftment. To this end, in co-operation with the client, people focussed development needs were identified during this project. These people focussed development needs included: the development of the Roads Directorate Engineers of Lesotho’s skills in the management of construction projects and construction site supervision, the development of the skills of the indigenous small contractors regarding construction methods and management; the skills development of the local community for future employment and job creation to generate income.

This paper outlines the importance of a holistic approach to the design of engineering projects and the role that co-operation plays in identifying the relevant development needs of both the client and the community. Information regarding the co-operation and identification of development needs with the client and community is presented, with special attention being paid to job creation and the development of the local construction industry – leaving a legacy of understanding and goodwill which will be remembered for many years. The HAMofutho River Bridge can now be considered a model for successfully connecting communities and enhancing the lives of the many people throughout Lesotho.

2. Co-operation

The holistic approach to engineering projects, taking into consideration non-technical issues such as social, cultural, political, environmental, economic, and ethical impacts on natural systems cannot be accomplished by the engineers or client on their own; it has to be collaborative effort [4].

This implies early co-operation with the client in order to identify the nontechnical role playing issues to be addressed. Likewise it is important to engage with the local communities, where the project will be constructed, to identify their nontechnical needs. By doing this, a relationship of trust can be built between the engineer, the client and the community. This will result in a clearer understanding of the client’s ambitions and identification of the community’s needs which will result in a collaborative process for the design and construction of a structure that will add value through innovation and local delivery of world-class solutions to rural problems.

It is RHHDHV’s philosophy to “enhance society together”. The company aims to show leadership in sustainable development and innovation, by teaming up with clients to become part of the solution to a more sustainable society. The company’s commitment to innovation must go beyond the immediate; making long term investments and co-creating with clients. By showing leadership in
sustainable development and innovation, the company teams up with clients to become part of the solution to a more sustainable society [5].

The objective on this project was to supplement the Road Directorate Engineers’ skills with a highly experienced project team, while at the same time mentoring and transferring skills to bolster the client’s experience pool. An extension of this philosophy was to transfer skills to develop indigenous small contractors engaged in this project.

2.1 Co-operation with the Client
On the HA Mofutho Footbridge project, co-operation with the client was engaged at an early stage and the following needs were identified:

- A pedestrian bridge to provide access for the community to health clinics, markets and employment;
- Development of the Roads Directorate Engineers of Lesotho’s skills in the management of construction projects and construction site supervision;
- Development of the skills of the indigenous small contractors regarding construction methods and management.

These development needs were identified by having regular meetings with the client, where ideas regarding development needs were shared, discussed and finally formalised. These development needs were eventually included in the agreement between RHDHV and the Ministry of Lesotho’s Roads Directorate.

2.2 Co-operation with the local community
Through engaging with the community, the following skills and potential outcomes were identified:

- Skills development for future employment.
- Jobs to generate an income.
- Access to health clinics, employment and markets all year.

It has been discovered, through previous co-operation with communities on other projects, that it is very important to consult with the community regarding the positioning of the river crossing. If, for technical reasons the river crossing cannot be placed where the community wants it, the reasons for the change in placement has to be communicated back to the community otherwise the bridge could become a “white elephant” (not used).

The engagement with the community was done through their local tribal councils. These tribal councils identified a Community Liaison Officer (CLO) for the project to mediate between the client, RHDHV and the community. The services of the CLO were retained throughout all of the phases of the project, starting at the feasibility stage and concluding at the end of the construction phase.

3. Development
The client’s development needs were discussed and the following sustainable development workshop opportunities were identified for this project:

- Construction Supervision Workshop for Roads Directorate Engineers,
- Training of Roads Directorate Staff in Site Supervision,
- Construction Method Workshop for Small Contractors and
- Employment and training of local labour.

These four development needs would assist to build Lesotho’s future through education and capacity development in the local community and the bigger Lesotho.

3.1 Construction Supervision Workshop for Roads Directorate Engineers
The Construction Supervision Workshop was aimed at developing the Roads Directorate Engineers with regards to site supervision and administration and included the following topics:

- Construction Methods,
3.2 Training of Roads Directorate Staff in Site Supervision
Staff members from the Roads Directorate were made available for in-service training regarding site supervision. These individuals assisted the Resident Engineer in fulfilling his duties.

3.3 Construction Method Workshop for Small Contractors
Once the construction of the bridge was underway, a site visit was organised for local small scale contractors by invitation. The site visit was followed by a workshop on construction project management and construction methods for the structure. The workshop was aimed at assisting the development of the indigenous construction industry and included the following topics:

- Construction Project Management,
- Construction Methods,
- Materials, Tools and Equipment and
- Quantities.

3.4 Employment and Training of Local Labour
It was made a requirement of the construction contract document that only local labour was allowed to be used. The contractor was allowed to only bring in his own key skilled labour. This created the opportunity for key skilled labour to train the local unskilled labour on the job.
4. Outcome

RHDHV’s focus was on delivering added value for the client, while at the same time addressing the challenges that the client and society faced in terms of the growing world population and the consequences that this has had on the local community.

The outcomes that were achieved on this project were:

- Construction management skills were transferred to the Roads Directorate’s personnel,
- Road Directorate staff were trained in service on site supervision,
- Small indigenous contractors were trained on construction project management,
- Local labour was trained,
- Additional household income was earned during the construction period and
- The local economy was stimulated.

5. In Conclusion

The HA MAFUTHO footbridge project highlighted the role that civil engineering can play in the upliftment of communities in rural, impoverished areas in Africa and serves as a reminder that an engineering structure can have more than functional purpose - promoting growth and enhancing society.

Meaningful solutions for the future can no longer be created without co-operation with partners, clients, communities and other stakeholders.

Those of us who are used to city life take infrastructural development for granted. But for some, there are isolated rural communities whose quality of life can be vastly improved by relatively small infrastructure developments [6]. In recognition of this project’s contribution to co-operation and development, this footbridge was awarded the Walter Barnett Trophy (Overall Winner) and the Infrastructural and Community Development Category at the South African Hot Dip Galvanizing Awards 2013.

As reported in Infrastructure Ne.ws, “The Bridge has been appreciated by the local travelling public and is well used. This project highlights the concern of the client for developing and safeguarding remote village communities and Royal HaskoningDHV’s appetite for people centric projects being able to engage with the local community to create jobs and transfer skills, not only to local contractors, but also to personnel from Ministry of Public Works and Transport” [7].
6. References