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6 December 2016

Portfolio Committee on Small Business Development
Parliament of South Africa
Parliament Street
Cape Town

Honourable Chairperson Ms Nozabelo Ruth Bhengu and Honourable Members,

**SMALL BUSINESS DEVELOPMENT: RURAL MUNICIPAL ROAD INFRASTRUCTURE
MAINTENANCE COOPERATIVE MODEL:**

We are privileged to present our Small Business Development model to the Committee and thank you for affording us the opportunity to do so. We believe our proposal has merit and trust that this abbreviated plan meet with your approval and allow us to proceed with the development thereof.

On 12 May 2016 the Honourable Minister of Small Business Development, Ms Lindiwe Zulu (Mp), noted the following in her address for the budget vote 31 on Small Business Development in the National Assembly:

"...we are all aware that SMME's and Cooperatives can be the main drivers of economic growth, poverty reduction, and job creation. This has been proven globally that SMME's are the heartbeat of stable, growing and better performing economies such as China, India, Germany, amongst others, and greater source of job creation, economic empowerment and transformation. Chile for example had a remarkable resurgence in economic activity thanks to new entrepreneurial initiatives in the last three years."

We believe that our proposal fits into these initiatives and will not only have a positive impact on poverty reduction and job creation, but also have secondary benefits like improving roads infrastructure as municipal assets, accessibility to schools and clinics, while improving the quality of life in rural areas.

According to the recently published Rural Transport Strategy for South Africa, 50% of the population of South Africa is rural; the rural areas contain 72% of those members of the total population who are poor. Compared to their urban counterparts, rural

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people also have vastly inferior access to basic social services and the economic mainstream. Given this context, the delivery of rural roads infrastructure and services can be a significant catalyst for sustainable economic development, improved social access and poverty alleviation in South Africa's rural areas.

I-CAT believes it can play a major role in alleviating this challenge. From our attached proposal, it will be evident that our cooperative model can address many of the issues noted in this strategy.

We trust that our proposal will receive due consideration and look forward to working with National and Local Government to successfully roll out many Cooperative models that are sustainable and successful.

Sincerely,



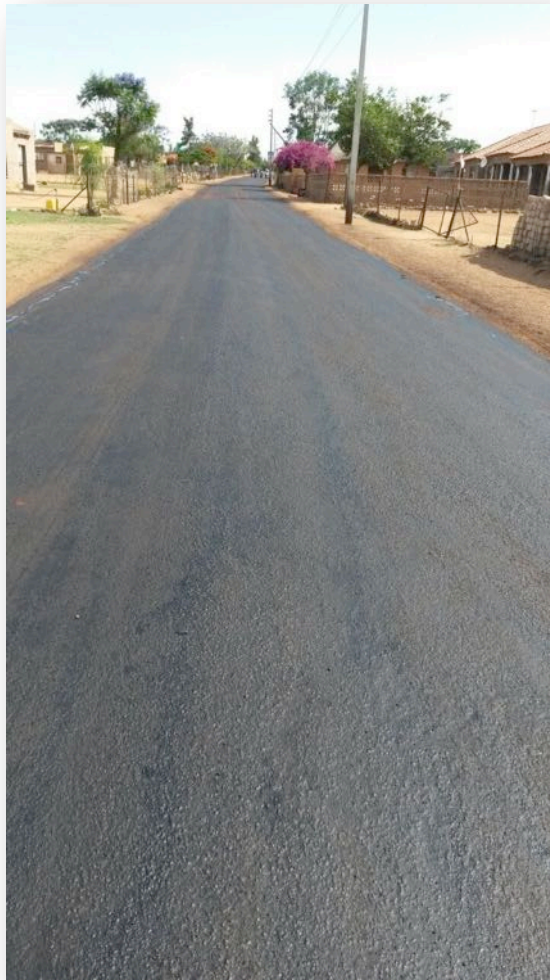
James J van Reenen
I-CAT Managing Director



RURAL ROADS INFRASTRUCTURE DEVELOPMENT COOPERATIVES MODEL

Prepared for:

Portfolio Committee on Small Business Development



EXECUTIVE SUMMARY

I-CAT has developed a model for the development and establishment of Cooperatives in rural communities. It will greatly benefit these communities and will create jobs while establishing assets of municipalities. It will not only stimulate the rural economy, but also have a positive impact on health & safety as well as infrastructure development.

I-CAT proposes a Cooperatives model where people from the community in rural areas will take responsibility to maintain 40 km of gravelled roads. This will greatly improve living conditions of the people in these communities while advancing the asset base of the municipalities where such project are deployed.

Municipalities currently spend millions of community funds on the re-gravelling of roads infrastructure, only to redo the infrastructure maintenance when rainstorms damage the roads to an extent that becomes inaccessible. This has a detrimental effect on the community as their access to needed facilities like clinics, hospitals, schools and markets are interrupted.

The model and opportunity discussed in this document will underline the fact that these problems can be addressed while alleviating poverty, improving infrastructure, creating much-needed jobs and improving living conditions.

This can all be achieved at almost half the cost of current rural road infrastructure maintenance to municipalities.

TITLE PAGE

DOCUMENT TITLE:

RURAL ROADS INFRASTRUCTURE DEVELOPMENT - COOPERATIVES MODEL

RELEVANT PARTIES:

Portfolio Committee on Small Business Development:

Parliament of South Africa

Parliament Street

Cape Town

Various Municipalities and Cooperativess:

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TABLE OF CONTENTS

EXECUTIVE SUMMARY	2
TITLE PAGE	3
DISCLAIMER & COPYRIGHT	4
1. INTRODUCTION	6
2. GREENBIT	7
3. COOPERATIVES	8
4. PROPOSED MODEL	9
5. FINANCIAL MODEL	19
6. PROJECT BENEFITS	21
7. CONCLUSION	23
ATTACHMENT A: GREENGRIP PAMPHLETTE	
ATTACHMENT B: GREENGRIP CERTIFICATION	

1. INTRODUCTION

I-CAT is a proudly South African market leader in environmental project management and products. We have been supplying clients with exceptional services and products for over ten years. The company originally started with dust suppression for the mining industry in Southern Africa and is currently supplying road stabilising and dust suppression products to 34 mines in Southern Africa. As with most new technology and innovation companies, we worked tirelessly to prove the exceptional quality of our services and superiority of our products. We believe that the success of our company is most definitely proof that staying true to good principals and caring for the environment and clients we engage with can have multiple rewards, even in the industrial sector. Always keeping true to our motto of *"change that doesn't cost the earth"*.

With changes to the Air Pollution act of 2008 as well as extra clauses to the Occupational Health & Safety Act (OHS), I-CAT found a growing demand for our revolutionary products and techniques to combat road infrastructure challenges.

I-CAT has identified the need for proper roads in and around communities where tarred or paved roads are not viable, nor affordable by government. There are estimated to be over 500,000 km of unsealed roads in South Africa, which are managed by the provincial and local roads authorities. High levels of dust are experienced on many of these roads. The dust generated by vehicles on unsealed roads has significant environmental and social impacts in terms of health, safety and visual pollution and substantial economic impacts pertaining to the loss of road construction material, higher vehicle operating costs, reduced agricultural yields and increased building maintenance. Unsealed roads often become inaccessible after rainstorms and access to schools, clinics and basic community needs are interrupted.

I-CAT believes that a network of owner operated road maintenance small businesses can address this dire need using our GreenBit product, which was developed for this specific purpose. Previous trials, during the development of the product, on community roads near Pretoria around a primary school emphasised the success of GreenBit. We have since successfully rolled out a pilot project to develop and prove the sustainability of a Cooperatives Business Model in the Dr JS Moroka Municipal District in Mpumalanga, where the need for better roads infrastructure is evident.

Impacts Of Dust Generated On Community Roads:

- Gravel Loss: The loss of soil fines result in potholing and corrugations thus contributing to increased road maintenance.
- Health: It is well documented that numerous respiratory diseases are attributed to high levels of fugitive dust.
- Discomfort and Nuisance: Discomfort for pedestrians, vehicle occupants and residents of properties adjacent to the road are significant on dusty unsealed roads.
- Safety Hazard: Safety hazard increases for motorists, cyclists, pedestrians and livestock as a result of reduced visibility.
- Vehicle Operating Costs: Most vehicle manufactures recommend doubling the maintenance frequency when a vehicle is operated predominantly on unsealed roads.

Our proposed structure will assist in asset building and infrastructure development in rural municipalities. This will not only reduce maintenance cost to the municipalities, but also develop and establish small enterprises, which will alleviate poverty and stimulate economic growth in these communities.

I-CAT has developed a business model where local community members can treat and maintain roads while establishing their own small business based on a Cooperatives Model. I-CAT believes that this model can alleviate the pressing issue of unpaved roads at least until the government is in a position to pave such roads. This can be done using our **GreenBit** product, which is inexpensive compared to tarred roads and delivers an acceptably smooth and dust free surface, while supporting local enterprise development.

2. GREENBIT

GreenBit is a natural binding agent combined with an emulsified bitumenous product to create a durable gravel road sealant. GreenBit was developed by I-CAT due to market demand, and I-CAT was subsequently awarded a three-year contract at Khumani Mine (Assmang) to treat and manage their primary haulage roads, using GreenBit.

GreenBit™

GreenBit is less harmful to the environment than traditional bitumen based road sealants because of its natural active ingredient. GreenBit produces a durable, smooth and dust free surface with lengthy intervals between maintenance applications. GreenBit is also water-soluble and easily incorporated into routine dust suppression procedures with no requirement for special equipment or handling precautions.



The above pictures were taken on the test road in Pretoria

Advantages of GreenBit:

- Less road maintenance
- Dust-free road surfaces
- Improves grip
- Environmentally safe
- Water soluble

GreenBit is exclusively produced in South Africa by I-CAT and was certified by Eco-Specifier as environmentally friendly.

3. COOPERATIVES

The Cooperative Act no.14 of 2005 describes a Cooperative as an **autonomous association** of persons united **voluntarily** to meet their **common economic** and social needs and aspirations through a **jointly owned** and **democratically controlled enterprise** organized and operated on **Cooperative principles**.

Cooperatives in general are based and operate on 7 cooperative principles:

- Voluntary Membership
- Democratically Controlled
- Economic Participation
- Autonomy and Independence
- Cooperation among Cooperatives
- Continuous Member Education
- Concern for Community

Reasons for forming a Cooperative

- Community Enterprises
- Promote Democracy
- Build Open Markets
- Raise Human Dignity
- Systems for Development

What is an ideal Cooperative?

- An ideal Cooperative is one that operates as a business.
- A business is a legally recognized organization designed to provide goods and/or services to consumers.
- It is formed to earn profit that will increase the wealth of its owners and grow the business itself.
- Cooperatives being businesses should be able to remain sustainable and profitable without reliance on grants.
- Cooperatives are business formed solely for the purposes of earning profits.
- The multiplier effect of having Cooperatives will be job creation, which subsequently leads to poverty alleviation.

Relevant Cooperatives

There are many different co-operatives that the Act provides for. However we will be using the following co-operatives as the basis of this business model, namely:

- Primary Cooperatives – which is a Cooperative formed by a minimum of five natural persons whose object is to provide employment or services to its members and to facilitate community development.
- Secondary Cooperatives - which is a Cooperative formed by two or more primary cooperatives to provide sectorial services to its members, and may include juristic persons.
- Tertiary Cooperatives – which is a Cooperative whose members are secondary cooperatives and whose objective is to advocate and engage organs of state, the private sector and stakeholders on behalf of its members, and may also be referred to as co-operative apex.

Business Principles

Cooperatives being businesses need to be managed and governed according to standard business principles:

- Governance
- Compliance to statutory regulations
- Feasibility and Viability Studies
- Bankable Business plan
- Marketing plan
- Record Keeping

4. PROPOSED MODEL

ROAD MAINTENANCE - THE COOPERATIVES

I-CAT envisage that a number of sustainable Cooperatives in a rural community, for the maintenance of road infrastructure will have strong structure and the skills needed to deliver good quality work to the benefit of the entire community.

Members

A standard Cooperative will consist of **6 Members**.

Skills

I-CAT will commit to a system of skills transfer to the members of every Cooperative that is established. These skills will be developed during the establishment phase of the first part of the roads that will be maintained by the Cooperatives. At least one member will need to have a valid South African drivers License Code 8 EB. The following “**on-the-job-training**” or skills transfer will form part during the establishment phase of each Cooperative:

- GreenBit product training module.
- GreenBit application training module.
- GreenBit pothole repair training module.
- GreenBit maintenance trailer operation training module.

Equipment

Every Cooperative unit will need the following equipment to enable it to manage the project:

- LDV – Long Wheel Base 1 Ton LDV with half canopy
- GreenBit Road Maintenance Trailer – Custom built and equipped trailer consisting of:
 - 1.5 ton 3 meter trailer
 - 1000 litre tank
 - Water pump
 - Smartphone with Reporting App
 - 8 x 25L product storage containers
 - Tool rack
 - 30 meter dragline hose
 - Spray lance
 - 2 x shovels
 - 4 x hard bristle brooms
 - 2 x steel rakes
 - 1 x pick

- 1 x hand compactor
- 1 x wheelbarrow
- 2 x watering cans
- 10 x traffic cones
- 4 x traffic flags

Objective of Cooperative

Each Cooperative will be capable of servicing 40 km of GreenBit constructed road each month. Cleaning and maintenance of roadsides can be added to the scope.

Cooperative Services

The Cooperatives will deliver the following services to the Municipality:

- Clearing roads of any debris that can damage the surface.
- Clearing of drainage channels.
- Repairing any potholes on constructed roads.
- Sealing and maintenance of road wearing coarse.

INITIAL ROAD CONSTRUCTION:

GreenBit Road Construction Protocol

- 1) Road is evaluated.
- 2) Storm water trenches are established.
- 3) The need for import material in highly eroded areas is assessed.
- 4) The road is scarified 100mm – 150mm deep.
- 5) GreenBit product is mixed into the scarified material.
- 6) The material is then compacted and the road shaped.
- 7) Wearing coarse is sealed.
- 8) Maintenance schedule commence –Cooperatives Model.

Equipment Needed

Establishing a durable, smooth and dust-free road surface from the onset is key. Municipalities spend millions on gravel road construction only to see this investment deteriorating much to quickly making the process almost futile. In order to establish a sustainable road, the municipality will need to assist with the following equipment for the initial road construction, equipment they either own or have access to for normal road construction within their district:

- Grader
- Water Bowser
- Mechanical Sweeper
- Roller / Compactor



I-CAT will engage with each of the identified municipalities and assist them with the initial road construction using GreenBit. Skills will be transferred to these Municipalities to ensure the continuous rollout of upgraded roads, ready to be transferred to the Cooperatives for maintenance.

The initial road construction process is as follows:



(1) Surface of road is scarified.



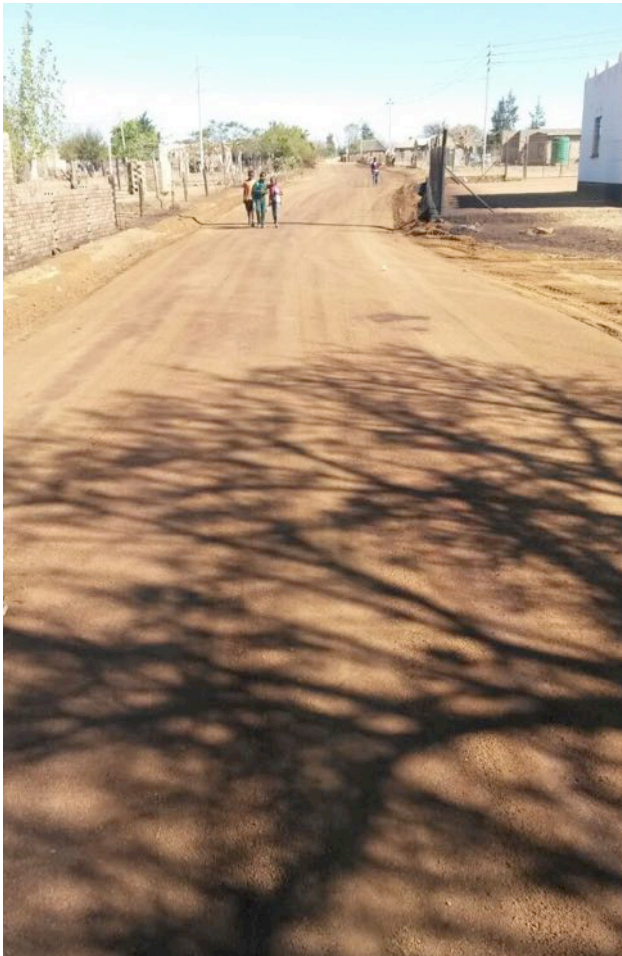
(2) Windrows are created and for the GreenBit product to be mixed in.



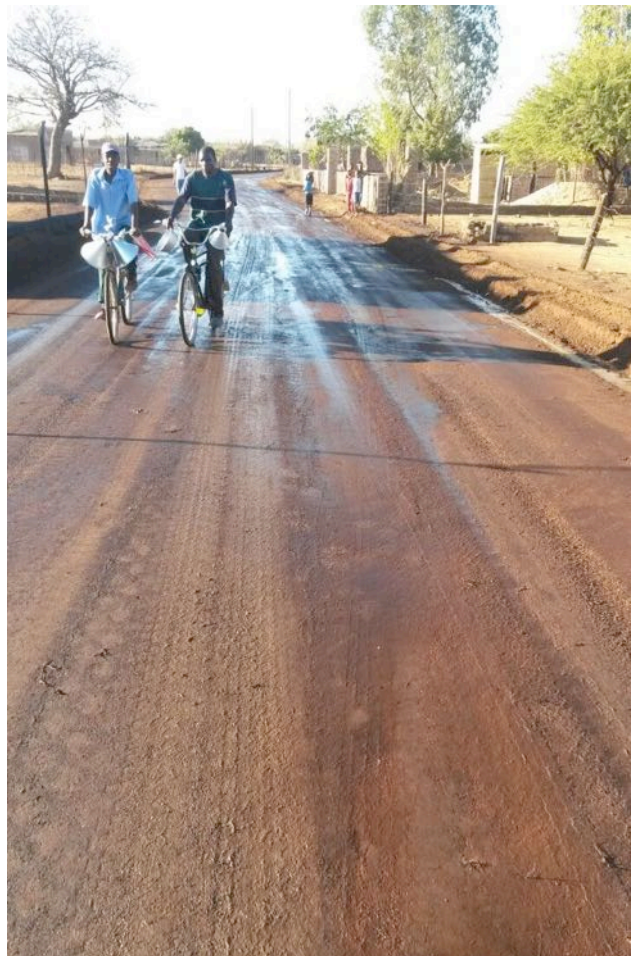
(3) A grader is used to mix the GreenBit product with the road material.



(4) The windrows are moved across the road while GreenBit is sprayed to ensure an even mix.



(5) The surface is compacted and shaped.



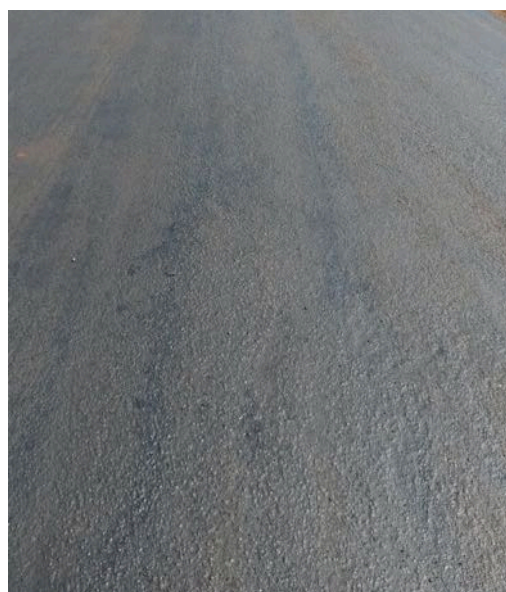
(6) The surface of the road is sealed using the water bowser.



(7) The road is sealed using a mechanical sweeper to remove loose material and to ensure a good seal.



(8) The surface of the road is sealed.



(9) Final finish of the road.

ADVANTAGES OF GREENBIT ROADS VS GRAVELLING:

Gravelled Roads

One of the major contributing costs attributing to the gravelling of roads is the need for imported material. It is extremely expensive to transport and quarry. A re-gravelled road only has a life expectancy of approximately 2 – 3 years with gravel loss due to water erosion and the creation of dust, which lead to regular road reconstruction intervals. A gravelled road also needs to be maintained on a regular basis, especially after heavy rainfall.

GreenBit Roads

By using GreenBit as a stabilizer and road sealant the need to reconstruct gravel roads on a regular base is eliminated. By stabilizing the base and wearing coarse the gravel loss, due to water erosion and dust creation is reduced completely. By removing the need for imported material the overall maintenance cost of gravel roads is reduced tremendously.

GreenBit will:

- Reduce the need for gravelling.
- Produce a durable long-term smooth dust free surface.
- Reduce the overall maintenance costs.
- Reduce overall maintenance.
- Increase quality of life of local residents.
- Will ensure accessibility to schools, clinics, etc.

MAINTENANCE PROTOCOL:

Month 1 – Month 6

After the road is constructed the road needs to be maintained and sealed once a week for six months. This is to ensure that the wearing coarse remains sealed properly.

Month 7 – Onwards

From month 7 onwards the road is then maintained on a monthly basis where all debris is removed, potholes are repaired and the wearing coarse is sealed.

IMPLEMENTATION:

Protocol:

- 1) Roads first need to be constructed before the roads can be given over to Cooperatives for maintenance.
- 2) Enough roads need to be constructed in the beginning for the Cooperatives to be utilized to their full capacity for them to be financially viable.
- 3) Availability of construction machinery to roll out the project.

IMPLEMENTATION MODEL:

Information

Construction of 1km of GreenBit road takes three days. The time needed to construct 10 km of GreenBit road is around 6 weeks. The length of roads one Cooperatives unit can service monthly is 40 km.

Priority roads to be treated first

I-CAT proposes that roads within communities should be prioritised according to the community needs. These include access roads to:

- Hospitals
- Clinics
- Schools
- Bus routes
- Other public transport roads i.e. taxi ranks

SCENARIO:

A newly implemented project will need 1 x Construction team (of a Municipality) consisting of:

- Grader (plus operator)
- Water Bowser (plus operator)
- Roller Compactor (plus operator)
- Mechanical Sweeper (plus operator)
- Supervisor
- 4 x Cooperatives consisting of:
 - 6 Members
 - LDV
 - Maintenance Trailer



SUSTAINABLE JOB CREATION (Proof of Concept):

Dr JS Moroka Local Municipality

I-CAT conducted a feasibility study at the Dr JS Moroka Local Municipality. A test road of about 1 km was selected as part of the project's "Proof of Concept".



Community meeting to explain the concept and meeting with the Executive Mayor of the Municipality.

According to the 2015 annual report the Dr JS Moroka Local Municipality has 2 720 km of internal unpaved roads that needs to be serviced and re-graveled on a regular basis. Many of these gravel roads provide access to hospitals, clinic, schools and comprises of multiple bus and taxi routes within the district.

According to the Dr JS Moroka Local Municipality IDP the average household comprises of 4 people. The IDP also makes provision for the re-graveling annually.

Job Creation and social economic impact per Cooperative

- 1 x Cooperative = 6 new jobs created
- Families impacted = 6
- Individuals: 6 jobs x 4 people per house hold = 24 individuals
- Salaries paid to Cooperative per month = R26 000.00

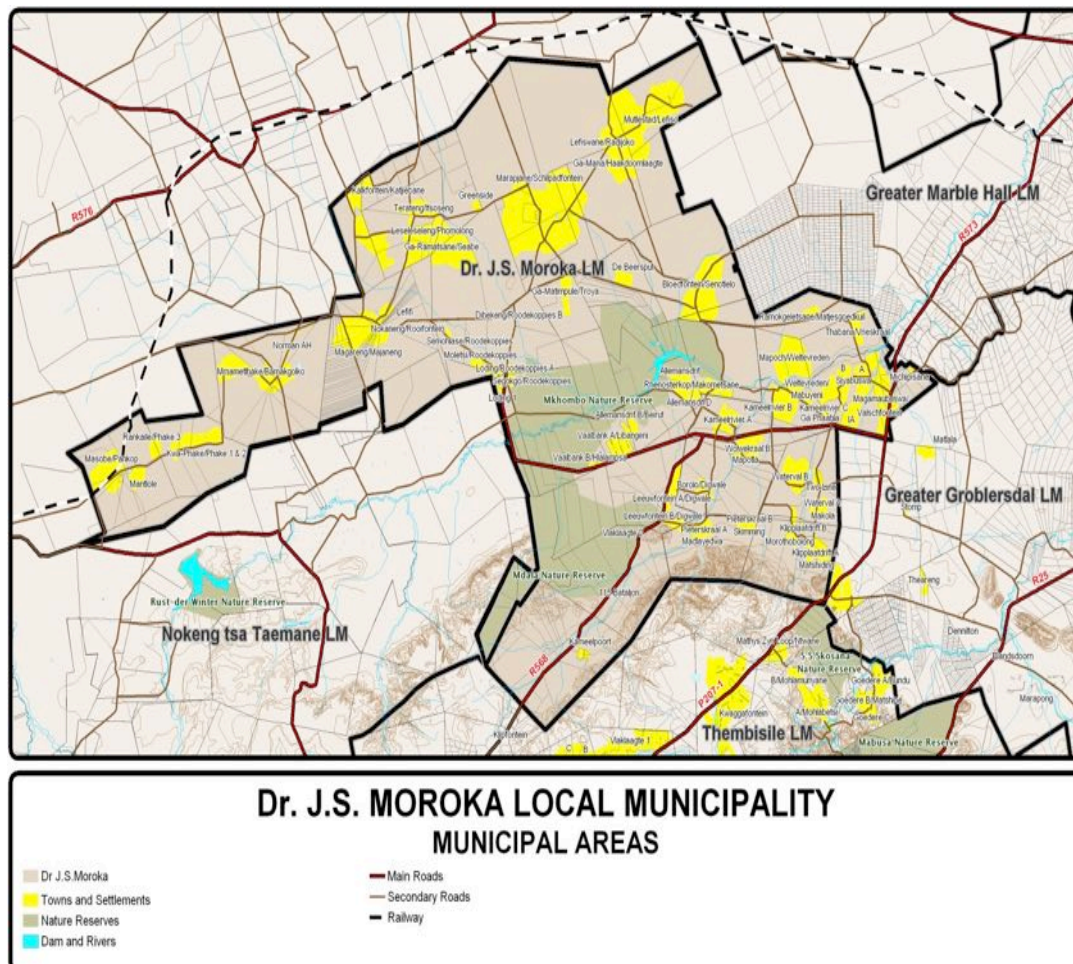
Scenario:

480 km of GreenBit roads to be constructed with priority roads done first:

- Hospitals / Clinics
- Schools
- Bus routes
- Taxi routes

The following impact on the economic sustainability of the model is projected:

- Cooperatives created = 12
- Direct job opportunities = 72
- Family members impacted = 288
- Salaries paid annually = R 3 744 000.00



5. FINANCIAL MODEL

Product Needed	Litres Greenbit	Cost	Total Product Cost
Per 1 km treated road	18,000	R8.60	R154 800,00

Construction & Maintenance Cost Projection over 10 Years (per 1 km):

GreenBit Cost	Maintenance	Total	Paved Road Comparison
R154 800.00	R45 800.00	R200 600.00	R2 200 000.00

From the above costing, it is evident that building and maintaining GreenBit roads, is much more cost effective than graveling or paving roads. This while delivering on job creation and all the other benefits as discussed previously.

Cooperative's Financial Model:

Maintenance Trailer (Capital Cost)

Item Description	QTY	Cost	Total
Trailer (double axle 1.5 ton)	1	R35 000.00	R35 000.00
1 petrol water pump (2 inch)	1	R8 000.00	R8 000.00
1000 litre water tank	1	R5 000.00	R5 000.00
30m x 25mm hose	1	R500.00	R500.00
Spray lance	1	R350.00	R350.00
Connectors	1	R400.00	R400.00
Piping	1	R1 000.00	R1 000.00
Tool rack	2	R1 000.00	R2 000.00
Labour	1	R5 000.00	R5 000.00
Shovels	2	R150.00	R300.00
Steel rake	2	R100.00	R200.00
Road brooms (450mm)	4	R100.00	R400.00
Pick	1	R150.00	R150.00
Hand compactor	1	R300.00	R300.00
Wheelbarrow	1	R400.00	R400.00
Watering cans	1	R100.00	R100.00
Overalls	12	R600.00	R7 200.00
Safety boots	6	R400.00	R2 400.00
Reflector vests	6	R50.00	R300.00
Smartphone with reporting App	1	R4 000.00	R4 000.00
Traffic cones	10	R100.00	R1 000.00
Traffic flags	4	R50.00	R200.00
TOTAL COST			R74 200.00

Maintenance Vehicle (Capital Cost)

Item Description	QTY	Cost	Total
Long wheel base LDV	1	R220 000.00	R220 000.00
Half canopy	1	R15 000.00	R15 000.00
Signage	1	R10 000.00	R10 000.00
TOTAL COST			R245 000.00

Total Start-up Cost

Item Description	QTY	Cost	Total
Maintenance Trailer & Equipment	1	R74 200.00	R74 200.00
Maintenance Vehicle	1	R245 000.00	R245 000.00
1 st Month Salary (Cooperative)	1	R45 800.00	R45 800.00
TOTAL COST			R365 200.00

The initial start-up cost per Cooperative unit will amount to R365 200.00. The LDV make is unimportant, can be 2x4 vehicle but must have a 1 tonne load capacity. Trailers exclusively built by I-CAT.

Cooperative's Monthly Financial Model:**Monthly Overhead Expenses**

Item Description	QTY	Cost	Total
Supervisor	1	R6 000.00	R6 000.00
Members	5	R4 000.00	R20 000.00
Vehicle	1	R5 000.00	R5 000.00
Insurance	1	R3 000.00	R3 000.00
Vehicle maintenance	1	R2 000.00	R2 000.00
Diesel	1	R4 000.00	R4 000.00
Trailer	1	R2 500.00	R2 500.00
Staff maintenance	1	R1 500.00	R1 500.00
UIF	6	R300.00	R1 800.00
Total Monthly Overhead Expenses			R45 800.00

GreenBit Needed	Product L P/M	Price	Total
1KM x 6m	210	R8.60	R1 806.00
40 KM	8 400	R8.60	R72 240.00

The product (GreenBit) will be bought from I-CAT at cost by the municipality and supplied to the Cooperative unit for maintenance.

Total Service	Product GreenBit	Total Cost Per month 40 km	Cost Per km per month	Cost Per km per Annum
R45 800.00	R72 240.00	R118 040.00	R2 951.00	R35 412.00

6. PROJECT BENEFITS

The proposed project has numerous benefits. It will contribute to *asset building* for the Municipalities (where their current gravel road infrastructure is more a liability than an asset) and *small business development* within rural communities. Further benefits include *job creation*, *social upliftment*, *economic development* in rural areas, *poverty alleviation* and *skills development* within these communities. In addition to these, it will improve *health and safety* due to the abatement of fugitive dust from gravel roads, as well as providing easier access for residents to schools, clinics and other facilities and services.

Public infrastructure is central to our prosperity and our quality of life. Infrastructure investments are vital to strengthening the economy, creating jobs and building strong communities in which residents enjoy a high quality of life. Municipalities deliver many of the services that are critical to the people living within their borders, and these services rely on well-planned, well-built and well-maintained infrastructure. Despite significant investments by all orders of government, more needs to be done to address current and emerging municipal roads infrastructure needs. Municipalities are the stewards of the infrastructure they own. Opportunities should be pursued to provide infrastructure more efficiently by forging partnerships with communities or consolidating services where possible. Maintaining roads should be a top priority. Some communities face unique challenges that require tailored solutions. This program can be structured to fit into *asset building* plans of every unique municipality.

This project will seamlessly fit into the National Department of Small Business Development's vision of a radically transformed economy through effective development and increased participation of SMME's and Cooperatives in the mainstream economy. Several small businesses can be established using our proposed model.

The *job creation* possibilities with this project have been discussed at length under job creation (point 4 above). We believe that this project can make a real difference in communities and can create several jobs impacting families in rural communities.

This will also impact on *social upliftment*. *Social upliftment* as a concept tends to be very philosophical at times. How do you walk a thousand miles? One step at a time! We believe changing our country, and making a real difference, are similarly daunting and yet equally simple – it starts with one person at a time (or in this model, six people at a time!).

Economic development within rural communities is very important. In many instances, agricultural and food production initiatives are the only programs supported by government. This program however, not only supports economic development, but also uplifts the community by delivering much-needed infrastructure, both in establishment and maintenance. It benefits the whole community in many ways, and is different to subsistence farming where only individuals benefit. We believe our model will deliver on economic development for the whole community by improving the infrastructure.

The effects of dust on *health* are well documented. Rural roads generate a lot of dust that has a very negative impact on people's health living close to high dust generating roads. Dust particles vary in size from visible to invisible. The smaller the particle, the

longer it stays in the air and the further it can travel. Large dust particles fall out of the air relatively close to where they are created. These particles form the dust layers you can see on things like furniture and motor vehicles. Large dust particles tend to be trapped in the nose and mouth when you breathe them in and can be readily breathed out or swallowed harmlessly.

Smaller or fine dust particles are invisible. Fine dust particles are more likely to penetrate deeply into the lungs while ultrafine particles can be absorbed directly into the blood stream. The type and size of a dust particle determines how toxic the dust is. However the possible harm the dust may cause to your health is mostly determined by the amount of dust present in the air and how long you have been exposed to it.

Dust particles small enough to be inhaled may cause:

- Irritation of the eyes
- Coughing
- Sneezing
- Hayfever
- Asthma attacks

For people with respiratory conditions like asthma, chronic obstructive airways disease (COAD) or emphysema even small increases in dust concentration can make their symptoms worse.

Breathing in high concentrations of dust over many years is thought to reduce lung function in the long term and contribute to disorders like chronic bronchitis and heart and lung disorders. Anyone who is exposed to high levels of dust may be affected – the longer you breathe in the dust, then the greater the chance that it will affect your health. People with existing respiratory and heart conditions, including smokers, are at greater risk of developing long-term health problems. Babies, young children and elderly people are also more likely to develop health problems from long term exposure to high levels of dust.

The *safety* issue is obvious. Dust on roads will impair vision, which in turn translates into accidents that can be avoided on dust-free roads.

7. CONCLUSION

I-CAT has proven that this can be a viable project and the perfect opportunity to develop new small business owners from the community. The viability calculations are based on a minimum of product per month at a set price to ensure at least break-even figures for the Cooperative, while earning a liveable income. The profitability of the venture will become increasingly higher based on the volume of product used.

The cost and selling prices on the product are based on the volumes required (provided the volume exceeds 30 000 litres ordered per month) as this will result in the reduction of the transport cost through the use of a tanker.

As noted in the scenario in this document, not only will the community benefit from the construction of roads that will last much longer and ensure easy and safe accessibility to priority areas and ease travelling and open more business opportunities to local residents as access to rural areas are improved, but the project will also establish sustainable businesses, which will employ the residents of the area and empower them to spend their money within the local community.

GreenBit™



“Dust suppression has become a must have rather than a nice to have in order to comply with safety, environmental and occupational guidelines set through new legislation. GreenBit is the perfect solution.”



GreenBit has been extensively tested on both public and mine haulage roads. It produces a strong base with a smooth and durable surface. Maintenance sprays are dependent on external factors but our clients are extremely satisfied with results, which exceeded expectations on durability.



GreenBit is a natural binding agent combined with an emulsified bitumenous product to create a durable gravel road sealant.

- ✓ It is an environmentally safe alternative to pure chemically based products for permanent gravel roads on mines and residential areas.
- ✓ GreenBit was specifically developed for this application and produces a durable, smooth and dust free surface, that eliminates the need for frequent maintenance.



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GreenBit™



- ✓ GreenBit is less harmful to the environment than traditional bitumen based road sealants because of its natural active ingredient.
- ✓ GreenBit produces a durable, smooth and dust free surface with lengthy intervals between maintenance applications.
- ✓ GreenBit is also water-soluble and easily incorporated into routine dust suppression procedures with no requirement for special equipment or handling precautions.

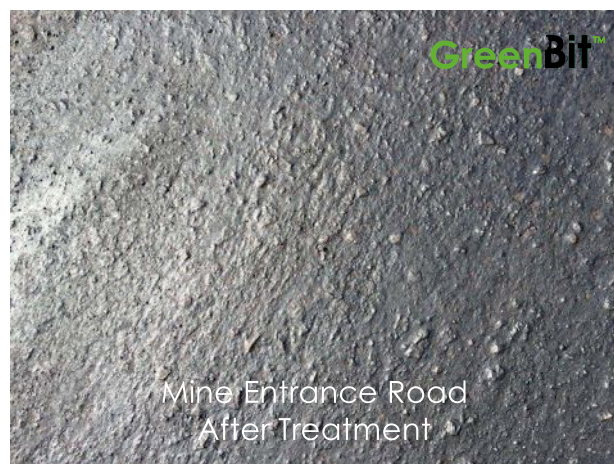


“Produces a strong, durable and dust free surface!”



Advantages:

- ✓ Prodigious water saving.
- ✓ Removes the need for constant grading and watering.
- ✓ Dust-free road surfaces.
Improves grip.
- ✓ Low road maintenance cost.
- ✓ GreenBit is environmentally safe.
- ✓ Water soluble – easily applied.





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Verified Product Certificate

This is to confirm that the following product has been verified as meeting the Ecospecifier Verified Product Standard and is approved for inclusion on ecospecifier.co.za.

A Green Building Scheme Pre-Assessment has been conducted and found this product is likely to contribute to the achievement of Green Building rating tool credits.

COMPANY I-CAT Environmental Solutions

PRODUCT GreenBit

VALID TO 20/05/2017

Ecospecifier's role is:

- ✓ To provide a third party, independent and unbiased assessment of information provided by manufacturers and other sources.
- ✓ To assess products using South African and International Standards, independent test data, third party research and expert opinion.
- ✓ To determine if products are eco and health preferable based on the premise that:
 - they exhibit one or more eco or health preferable characteristic compared to other products in their category; or
 - they are a member of a product category that is in itself an eco or health preferred category; and
 - they do not contain 'significant' ecological or health damaging content.

Certified by Ecospecifier Pty Ltd per

David Baggs | Technical Director
Registered Architect, FRAIA, ABSA, Green Star AP, LEED AP

www.ecospecifier.co.za