



Cofimvaba Rural Education Development ICT Working Group Reportback and Scoping

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CSIR Meraka
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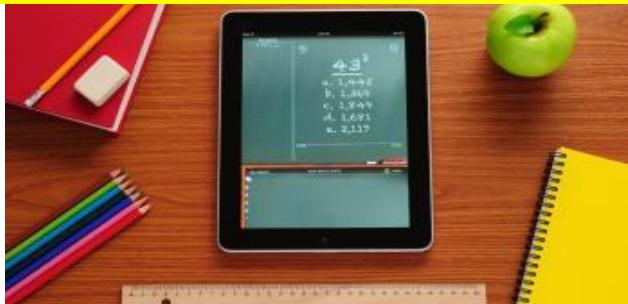
Working Group members

- Active (at the moment):
 - Merryl Ford (CSIR Meraka)
 - Isaac Maredi/Jeanette Morwane (DST)
 - Phil Mnisi (DBE)
 - Prof Werner Olivier (NMMU)
 - Prof Mary Metcalfe (DBSA)
 - Fiona Wallace (Coza Cares)
 - Mario Marais, Marlien Herselman, Adele Botha, Rasha Miri, (CSIR Meraka)
 - Wessel Wessels (Hive Holdings)
- Other (advisory/support):
 - Mpho Letlape (Sasol Inzalo)
 - Prof Veronica McKay (UNISA/DBE)
 - Prof Laura Czerniewicz (UCT)
 - Sarietjie Mostert (UFS)
 - Dr Ronel Callaghan (UP)
 - Dr Jacqueline Batchelor (UJ)
 - Dylan Busa (Mindset)
 - John Thole (Edunova)
 - Kobus Roux (CSIR Meraka)
 - Shafika Isaacs (SchoolNet SA/independent consultant)
 - Others... (pulled in as needed)

Cofimvaba eTextbook Priority Focus

AIM: 21st Century Schooling

SUPPORT FOR ACCESS TO DIGITAL CONTENT



Support for a 21st Century School Environment



ICT to support teaching and Learning

Improved EDUCATIONAL OUTCOMES

Learner Achievement

21st Century Skills & Competencies

Employability Skills & Competencies

LEARNERS AND HOME



TEACHERS AND SCHOOL

Support for informed and “smart” ICT decision-making

FUNCTIONAL SCHOOL ENVIRONMENT

Competent Management & Leadership

Competent Educators
Informed parents

ADEQUATE INFRASTRUCTURE

Buildings
Sanitation
Electricity
Water

Access to ICTs

NON-ACADEMIC LEARNER SUPPORT

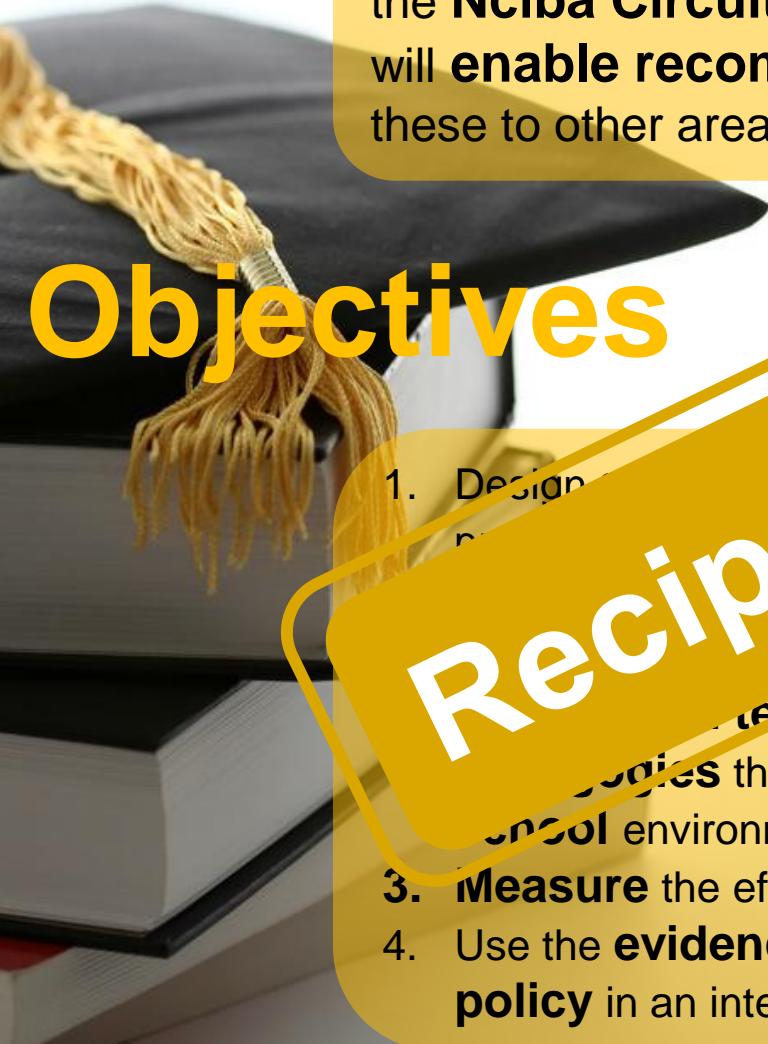
Health
Nutrition
Transportation
Socio-economic

GOVERNMENT AND POLICY

Aim

To investigate the viability of providing **electronic textbooks** and other **educational digital content resources** to 25 schools in the **Nciba Circuit** of the Cofimvaba School District. This learning will **enable recommendations and models** for scaling these to other areas in the District and potentially elsewhere in South Africa.

Objectives



1. Design and develop approaches and models to support the use of digital content by learners at poor and rural schools in South Africa;

2. Test and improve new and evolving technologies, mobile devices, platforms and methodologies that support the use of digital content for rural school environments;

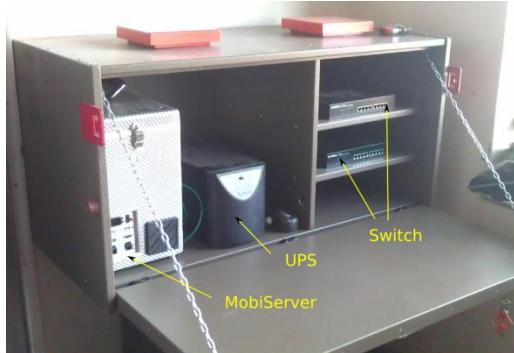
3. Measure the effect on the 21st skills of learners; and

4. Use the evidence from the research within this context to inform policy in an integrated and coherent manner.

Recipe for Success

Arthur Mfebe SSS

- **MobiCHARGE** – Solar/Wind/other charging station (lockers) for schools (phones/laptops/tablets/netbooks)
- **2 x MobiKIT** – shared, portable tablet x 10 kit to be used as a resource in the classroom.
- **MobiHub** – Portable wifi hub and content server (Digital Doorway) with battery backup
- **MobiServer** – Server in a secure desk containing Digital Doorway + MIB content. Includes a UPS and switch.
- **Wifi network** in the school
- **Teacher-training** - have undergone 4 mini courses – focus on how to manage devices in a school and how to teach with tablets.
- **Dr Math** and **QuizMax** have been introduced to the school.
- Partnership with **NMMU** and their Maths and Science teaching system (Netbooks, projectors and tablets)



Project Scope (3 – 5 years)

- Focus on 26 Nciba schools, 6 500 learners
- Test various models, in terms of

- ✓ Devices (tablets)
- ✓ Content
- ✓ Infrastructure
- ✓ Connectivity
- ✓ Integration into the school
- ✓ Costs (TCOs)
- ✓ Sustainability
- ✓ Logistics
- ✓ Support & Maintenance
- ✓ Operations
- ✓ Change Management
- ✓ Teacher training



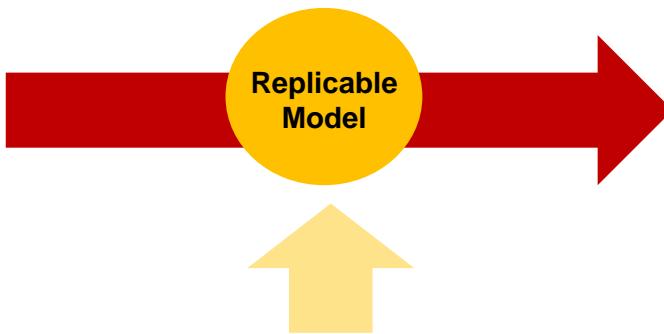
- In parallel with existing paper-based textbooks
- CSIR Meraka will have overall project Management responsibility

“9 Component Model”

NOW



Learning and Teaching Support Material
consisting of paper-based textbooks, workbooks & readers



21st Century Schooling



Learning and Teaching Support Material consisting of interactive multimedia learning resources

Programme Management

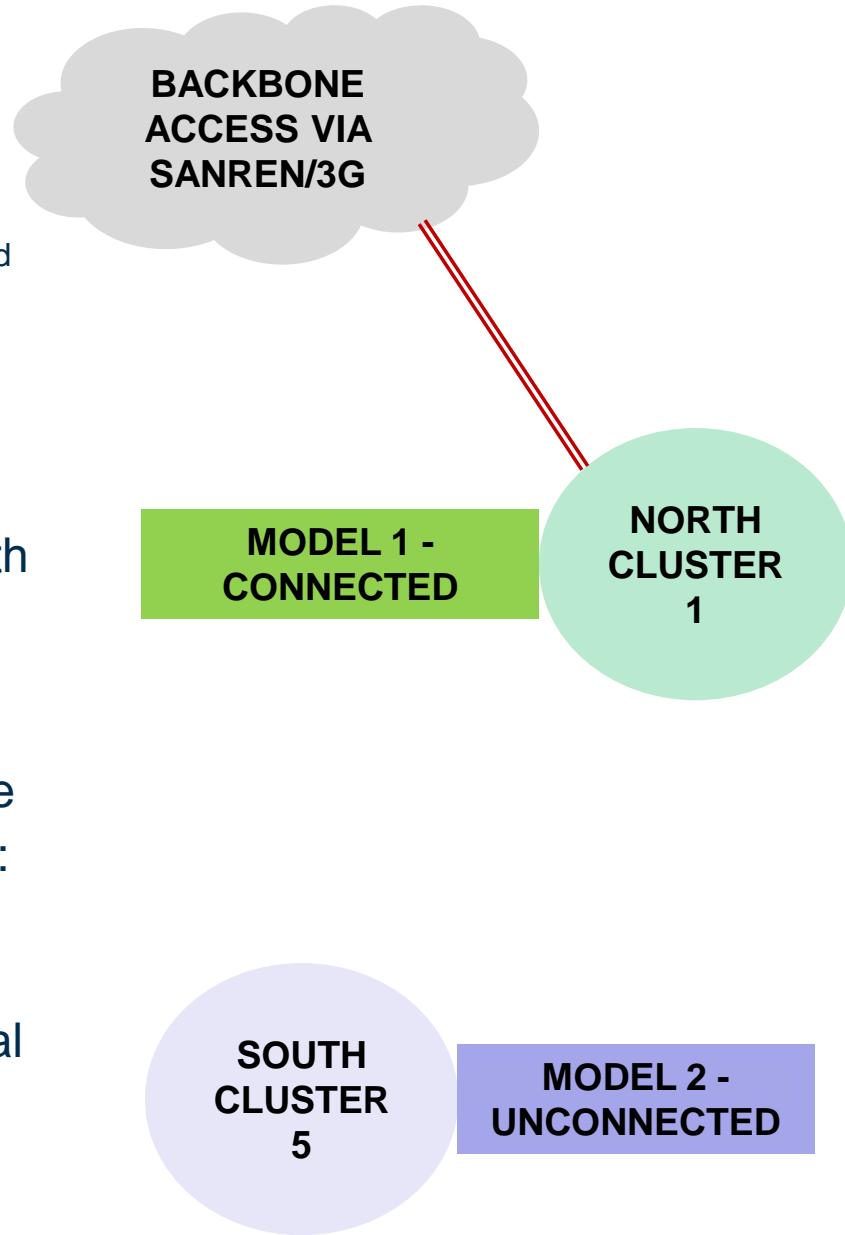
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|--|---|--|
| CONTENT Standards Conversion Creation & Customisation | SCHOOL INFRASTRUCTURE Devices Wireless LAN Storage and Power | NETWORK WiFi Mesh Backbone connectivity Internet |
| CHANGE MANAGEMENT People (District, SMT) Technology Process | PEDAGOGY Training Preparation In the classroom | RESEARCH Masters & PhD Technology R&D ICT4E R&D |
| OPERATIONS MANAGEMENT Logistics Support & Maintenance Distribution | KNOWLEDGE SHARING Marketing strategy Social Media Strategy Knowledge management | MONITORING & EVALUATION Learners Teachers School |

Principles



Concept – Phase 1

- 9 schools
 - 3 x Senior Secondary - Arthur Mfebe, Siyabalala and Kwahza
 - 6 x Junior - St Marks, Bangilizwe, Mvuzo, Gando, Mtimbini, Zamuxolo
- Local wifi network per school
- Schools physically close clustered in 2 groups – North (“connected”) and South (“unconnected”)
- Schools in each cluster linked to each other via wireless mesh
- Clusters linked to each other if possible
- Different models tested in each cluster:
 - ✓ Devices
 - ✓ Content management process
 - ✓ Device management
- Leverage early successes for additional funding and expansion into additional schools



Process – Phase 1 (2013)



STEP 1: Meeting with principals and deputies, and allocated ICT champion

- ✓ Hand out tablets
- ✓ Preparatory course – change management and how to manage technology in a school
- ✓ (Include district officials?)
- ✓ Homework to be completed before STEP 2

STEP 2: Teacher training

- ✓ Tablet per teacher
- ✓ Model as per Arthur Mfebe – “Learn to Earn”
- ✓ Homework to be completed over 4 courses (until the researchers are sure that they are ready), then STEP 3

STEP 3: MobiKits to Schools

- ✓ According to size of school
- ✓ Shared tablets in the classroom
- ✓ MobiHub installed (local wifi in the classroom, local content)
- ✓ Monitoring & evaluation as to usage and management of these devices
- ✓ Continuing training of the teachers (who continue to do their “homework”)
- ✓ Once happy that the school is ready, STEP 4

STEP 4: Tablets to learners

- ✓ Continuing training of the teachers (who continue to do their “homework”)
- ✓ Wifi installed in school plus linked to other schools in cluster
- ✓ Tech support person appointed
- ✓ Pedagogy support person appointed

STEP 5: Handover to management entity

- ✓ Ongoing ops management and support



CONTENT

Standards
Conversion
Creation & Customisation

- Status

- Meeting with Phil Mnisi on 17 Jan 2013
- Strategy being developed – collaboration between DBE, CSIR Meraka, BreadBin and Coza Cares
- Decentralised content hubs that synchronise with centralised content hub (in the cloud)
- FREE local access (wifi) via the school content hub
- Content and apps for Grades R to 12 (peer-reviewed and quality-controlled)
- One point of access for ALL curriculum-aligned educational content and applications
- Meraka to manage the process (potentially providing technology input)

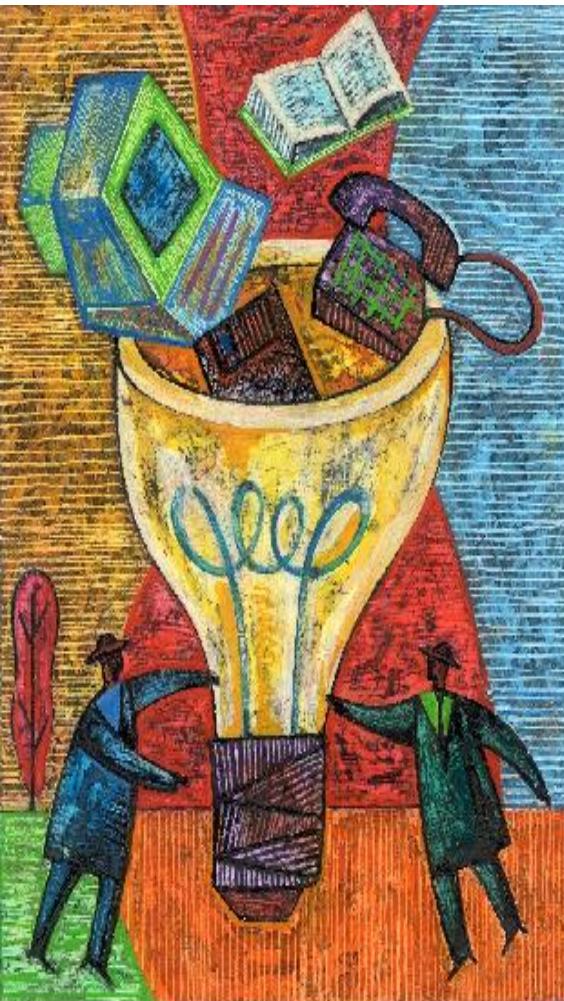
- Next Steps

- Proposal with costing being developed
- Meraka team to meet with BreadBin team in Cape Town asap
- RFP to be published for a “Content Champion”

- Issues

- Funding strategy (DBE-funded? Private sector-funded?)





- Status

- Valuable lessons learned at Arthur Mfebe
- Developing an invitation to all interested parties to attend an information session re specs of teachers' and learners' tablets
- Aim is to get suppliers to donate 10 – 20 tablets to be part of MobiKit
- Developing detailed infrastructure plans per school, covering issues such as power/charging of devices; safe storage; access (internet/backbone)
- Appointed technical support champion

- Next Steps

- Session with suppliers
- Detailed costing and rollout plan
- RFP to be published for a “Device specialist”

- Issues

- Rollout dependant on secured funding

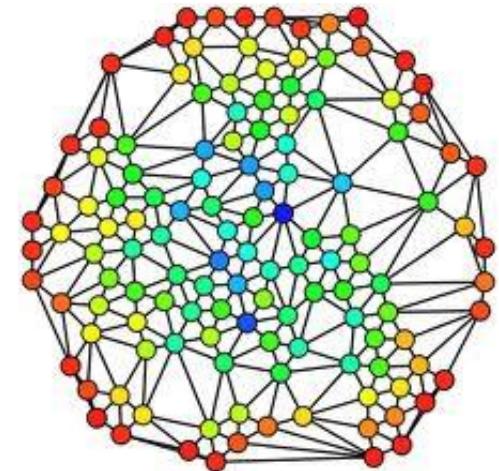
NETWORK

WiFi Mesh

Backbone connectivity

Internet

- Status
 - Valuable lessons learned at Arthur Mfebe
 - Appointed technical support champion
 - New post advertised (network specialist/architect)
- Next Steps
 - Network design (initial plus extended network)
 - Appointment of network specialist/architect
 - Detailed costing and rollout plan
 - Procurement of equipment
- Issues
 - Procurement/Rollout dependant on secured funding



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CHANGE MANAGEMENT

People (District, SMT)
Technology
Process

- Status
 - First session (Principal + Deputy + School ICT Champion) to be held end-Feb
 - Training of District officials the day before
- Next Steps
 - RFP to be published for a “Change Management specialist”
 - Procurement of tablets for the management teams
- Issues
 - Rollout dependant on secured funding



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- Status
 - Arthur Mfebe training of teachers ongoing (6 sessions left)
- Next Steps
 - RFP to be published for a “Training company”
 - Training of teachers at the additional 8 schools to start
 - Procurement of teacher devices
- Issues
 - Rollout dependant on secured funding



- Status
 - Dr Marlion Herselman (NRF-rated researcher) to drive research focus
 - Development of a “Scholarship programme” for Masters and PhD studies of the Cofimvaba initiative – R40 000 Masters, R70 000 PhD (per year)
 - “Unfunded” PhD study already underway (UNISA student) – study of eTextbook business models (joint supervision)
 - Meetings with various universities underway
- Next Steps
 - Allocation of scholarships (5x Masters, 5xPhD)
- Issues
 - Funding secured for Year 1 (RAF)
 - Need funding for Years 2 – 3 (5?)



OPERATIONS MANAGEMENT

Logistics
Support & Maintenance
Distribution

- Status
 - Appointed technical support champion
- Next Steps
 - Development of operational management plan
 - RFP for Support and Maintenance training partner
 - Identification and training of youngsters from the area
- Issues
 - Funding for technical support champion secured for Year 1 (RAF)
 - Need secured funding for the rollout

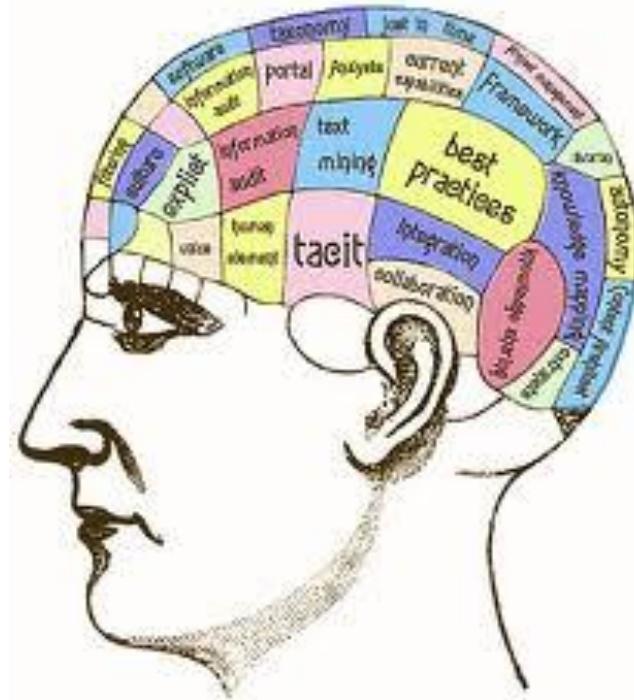


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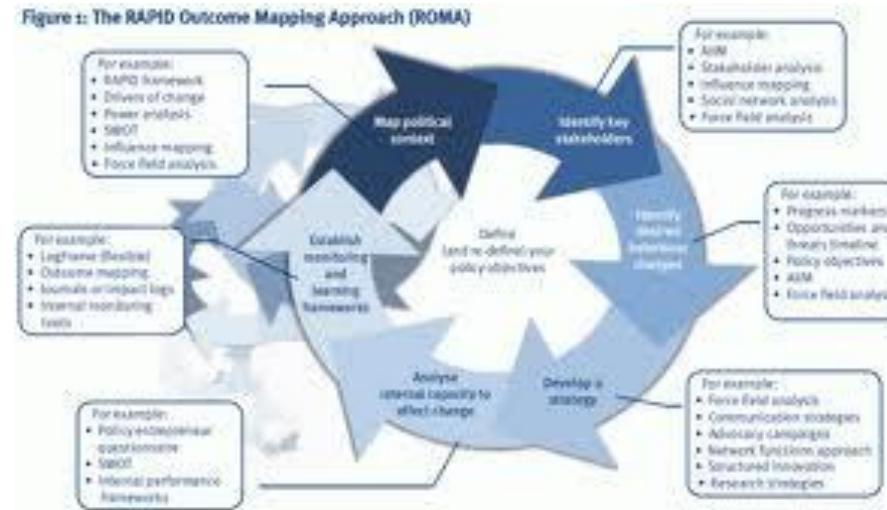
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- Status
 - Putting together a marketing/information sharing web site
 - Registering on Twitter and Facebook
- Next Steps
 - Development of marketing strategy (with DST + DBE)
 - Development of a social media strategy
 - Identification of “knowledge management” champion
- Issues
 - Funding secured for Year 1 (RAF)
 - Need secured funding for additional years



- Status
 - Putting together an M&E Framework
- Next Steps
 - Implementation
 - Linkage with HSRC M&E framework
 - Linkage with Prof Mary Metcalfe's initiative and M&E activities
- Issues
 - Funding secured until April 2013 (RAF)
 - Need secured funding for additional years



Programme Management

- Project Manager appointed for Year 1 (Rasha Miril)
- Networking and Funding activities:
 - Meetings with Altech Autopage – keen to fund
 - Meetings with MacMillan – will donate digital textbooks to all schools that are part of this initiative
 - Meetings with Coza Cares – will fund BreadBin at District Office
 - Meetings with ECDoE – to be arranged
 - Meetings with Shell – next week
 - Meetings in Cape Town to be arranged:
 - Siyavula textbooks (Mark Horner)
 - DG Murray Trust (Angela Biden)
 - Old Mutual
 - BreadBin
- Developing a detailed plan and project proposal for Phase 1 (9 schools) to be submitted to DST (R10 million) – will cover rollout in Year 1
- Developing a set of “packaged” interventions that can be funded by the private sector



Thank you