WASTE MANAGEMENT SUMMIT, 2015

DRDLR

Rural Infrastructure Development (RID) Branch

10 March 2015

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INTRODUCTION

Underdevelopment of rural areas in SA remains a challenge

- ❖socio-economic issues (poverty, unemployment, poor or unavailability of basic services such as **water, energy, sanitation, housing, poor education, poor infrastructure** etc)

Comprehensive Rural Development Programme (CRDP) launched in August 2009 as part of the strategy to deal with Rural development challenges.

The **CRDP** aims to create "**vibrant, equitable and sustainable rural communities**"

3-pronged strategy

- Coordinated and integrated broad-based **agrarian transformation**
- **Rural development and infrastructure**
- An improved **land reform programme**

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PHASES OF CRDP

Phase I	• Meeting basic human needs. (shelter, water, sanitation, food, electricity, etc.).
Phase II	• Infrastructure development (social, economic, ICT). • Enterprise development.
Phase III	• Small, medium and micro industries (agro-processing, village markets, finance/credit facilities). - Agriparks

DRDLR's MANDATE

DRDLR is responsible for coordinating Outcome 7, which is about *"Creating vibrant, equitable and sustainable rural communities and food security for all".*

DRDLR also assumes 5 roles namely:-

- Initiate
- Coordinate
- Facilitate
- Implement; and
- Catalyse

Started with **160 CRDP Wards**

Also operate in **27 Prioritized DMs**

RURAL INFRASTRUCTURE DEVELOPMENT (TECHNOLOGY RESEARCH AND DEVELOPMENT)

“ While Scientists in Europe have been trying to get to the moon, Scientists in Africa are still trying to get to the village” ???

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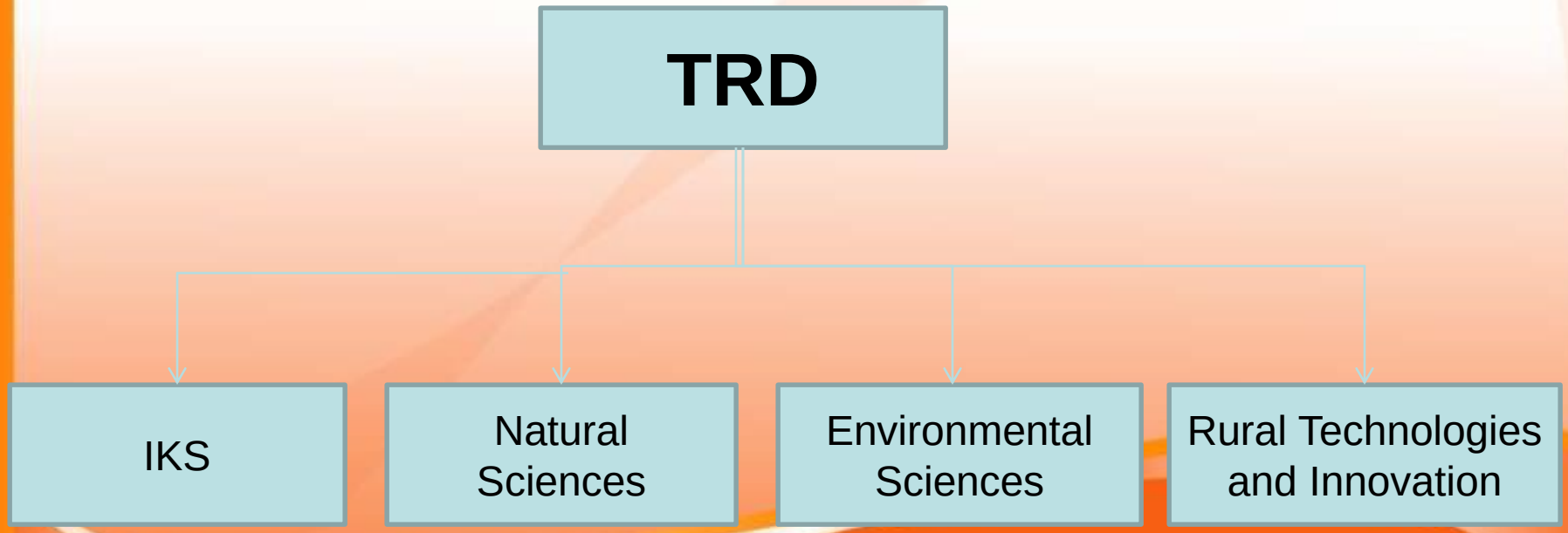
TECHNOLOGY RESEARCH AND DEVELOPMENT

Objectives

- To contribute towards reducing vulnerability and poverty through implementable **rural technology and research**
- Promote the use of appropriate technologies, modern approaches and **Indigenous Knowledge Systems (IKS)**
- Conduct research on technological advancement focused on rural innovations and natural resource utilisation

AREAS OF TECHNOLOGY-RELATED RESEARCH



WASTE MANAGEMENT

- ***Waste management*** involves the collection, transport, processing, recycling or disposal, and monitoring of waste materials.
- Waste management is also carried out to recover resources from it.
- Waste management can involve solid, liquid, gaseous or radioactive substances with different methods and fields of expertise for each.
- Waste management practices differ for developed and developing nations, **for urban and rural areas**, and for residential and industrial producers.

WASTE MANAGEMENT INITIATIVES IN SUPPORT OF DRDLR'S MANDATE

***Benefits of turning waste into worth*:**

- **Creating rural enterprises**
- **Creating jobs**
- **Reduce or possibly eliminate waste that end up at landfill sites**
- **Creating vibrant communities**

DRDLR's AREAS OF FOCUS

Solid waste **resulting from:**

- **Agriculture (plants and animals)**
- **Other (e.g. natural textiles, rubber, glass, human faecal matter, electronic equipment etc)**

AGRICULTURAL WASTE PROJECTS

It's a common form of waste

Waste from animals; harvesting and processing of crops and trees – **Conservation Agric Technology (CATs)**

Waste from processing operations (peelings, seeds, straw, stems, sludge, and similar materials).

Most agricultural waste is organic, and is used as fertilizer or for other soil enhancement activities.

Also used to produce renewable energy

AGRIPARKS initiative (more waste to be managed)

- In 27 DMs, 1 per province by September 2015

EXAMPLES OF CATs PROJECTS

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EXAMPLES OF AGRICULTURAL WASTE WITH IK ASPECTS

Marula Fruit (IKS and Technology combination) – Feasibility study to be conducted

- Juice produced
- Skin burnt to produce coffee
- Shell used for energy
- Nuts produced

EXAMPLES OF TECHNOLOGY PROJECTS WITH WASTE MANAGEMENT ASPECTS

1) **Urine Diversion System** - **Glass recycling** – Bead-making technology ***piloted***
2) Waste **Tyre Depolymerisation** - ***Feasibility study*** to produce Renewable energy
3) Waste **Tyre for paving internal streets** in rural areas – **Feasibility study** still to be conducted
4) Waste **plastic –** recycled to manufacture products

1) URINE DIVERSION – DRY SANITATION

- Toilets ***piloted*** in FS (79), NW (150), LP (200), GP (600), MP (200), EC (200)
- Urine and faecal matter (solid waste) get separated at source. (Odourless - no flies)
- Has a special toilet seat that captures the urine and sends it down a separate pipe to a container
- Solid waste gets dropped onto a vault, get dried through solar powered thermal insulation plates Both urine and solid waste can be used for composting

URINE DIVERSION SYSTEM – DRY SANITATION TOILETS

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UDS TOILET – INSIDE THE HOUSE

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UDS TOILET SEAT

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2) WASTE GLASS USED FOR BEAD-MAKING

- Use **waste bottles/glass** to make beads
- Supporting the Thomo Heritage park with the bead-making technology (labor intensive)
- Combination of **Indigenous Knowledge & Technology**
- **Skills development support** to the Thomo Heritage park employees (cooperatives)
- Support local tourism industry and the creation of enterprises (job creation)

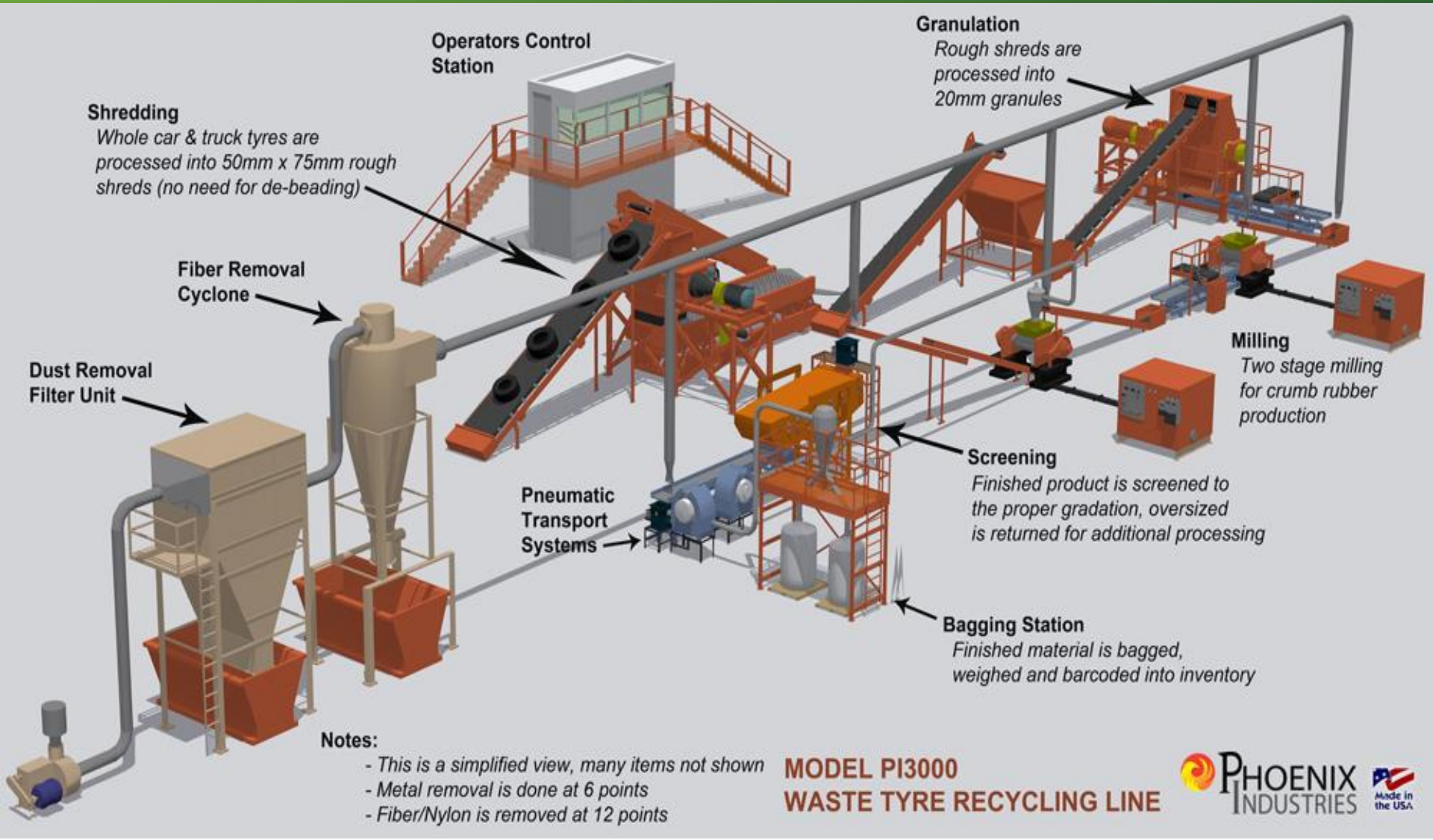
3) TYRE DEPOLYMERIZATION- ENERGY PRODUCTION

- The feasibility study conducted in the Mopani District Municipality in Limpopo Province.

Purpose

- To assess the **feasibility of designing and constructing a Tyre Depolymerization plant (TDP)** that could reduce the waste tyres and stimulate the local economy in Thomo village, Giyani, Limpopo Province.
- To assess the **most appropriate technology** for tyre recycling.
- To assess the quantities of waste required and bio-diesel that could be produced to support local farmers (tractors).
- To compile a business plan based on the feasibility study outcome

MODEL OF TDP PLANT



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4) WASTE TYRE FOR PAVING STREETS & OTHER PRODUCTS

- In countries like **USA, shredded rubber tyres are used to strengthen concrete**, and that has significantly reduced the cost for concrete.
- In SA about **160 000 tons of waste tyres** are formed every year with almost **28 million of used tyres** dumped unlawfully in landfills.
- Recycling has therefore become critical.
- A study has been initiated to investigate types of tyre recycling projects that can be used to **pave internal streets in rural areas** (Brazilian model)
- **Products** from waste tyres also identified (shoes etc)

WASTE TYRE PRODUCTS

5) PLASTIC RECYCLING TO PRODUCE CONSUMER GOODS

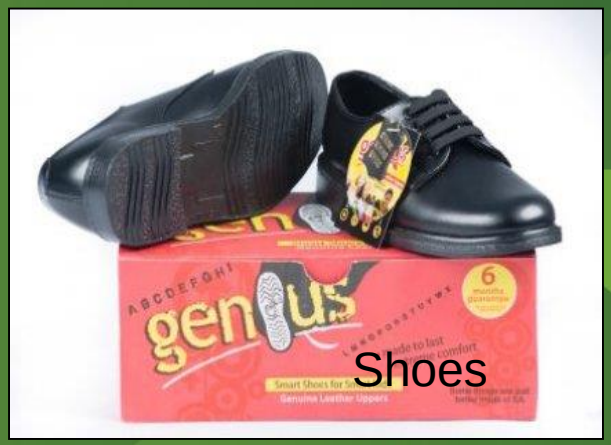
- Concept of recycling has changed people's mind-sets on the product value (not so much though for rural people).
- Plastic polymers when compared to other materials such as glass and metal need greater processing during recycling, which involves heat treating, thermal depolymerisation and monomer recycling.

Example of Plastic recycling process

How easy/difficult can it be to start this kind of enterprise in a rural area?

EXAMPLES OF PLASTIC RECYCLING END-PRODUCTS

Conference bag



Shoes

Key ring

Isotherm Roof insulation

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RECOMMENDATIONS

Lot of barriers exist esp for rural communities to get involved that are usually located far from everything (inaccessibility)

- More **research needs to be conducted** regarding best practices and technological innovation to support implementation
- DEA to **coordinate Waste management initiatives** and resources to facilitate the implementation of projects
- Mobilize and influence **government and external resources.** (Access private sector funding e.g. corporate social investments; including international funding sources
- **Coordinate stakeholders** for technical support in the identified areas

RECOMMENDATIONS cont….

- Relevant Depts e.g. Small Businesses and DTI should take the lead in the creation of enterprises, with other role players playing their part.
- Partner with role players to **educate rural communities** about the importance of waste management and the benefits thereof, through DRDLR Social mobilization unit and Council of Stakeholders existing in rural areas.
- Digital Doorways and other **ICT infrastructure** provided by DRDLR and other institutions should be utilized to create awareness on Waste management programmes and Funding mechanisms available.

RECOMMENDATIONS cont….

Rural ICT projects – Digital Doorway

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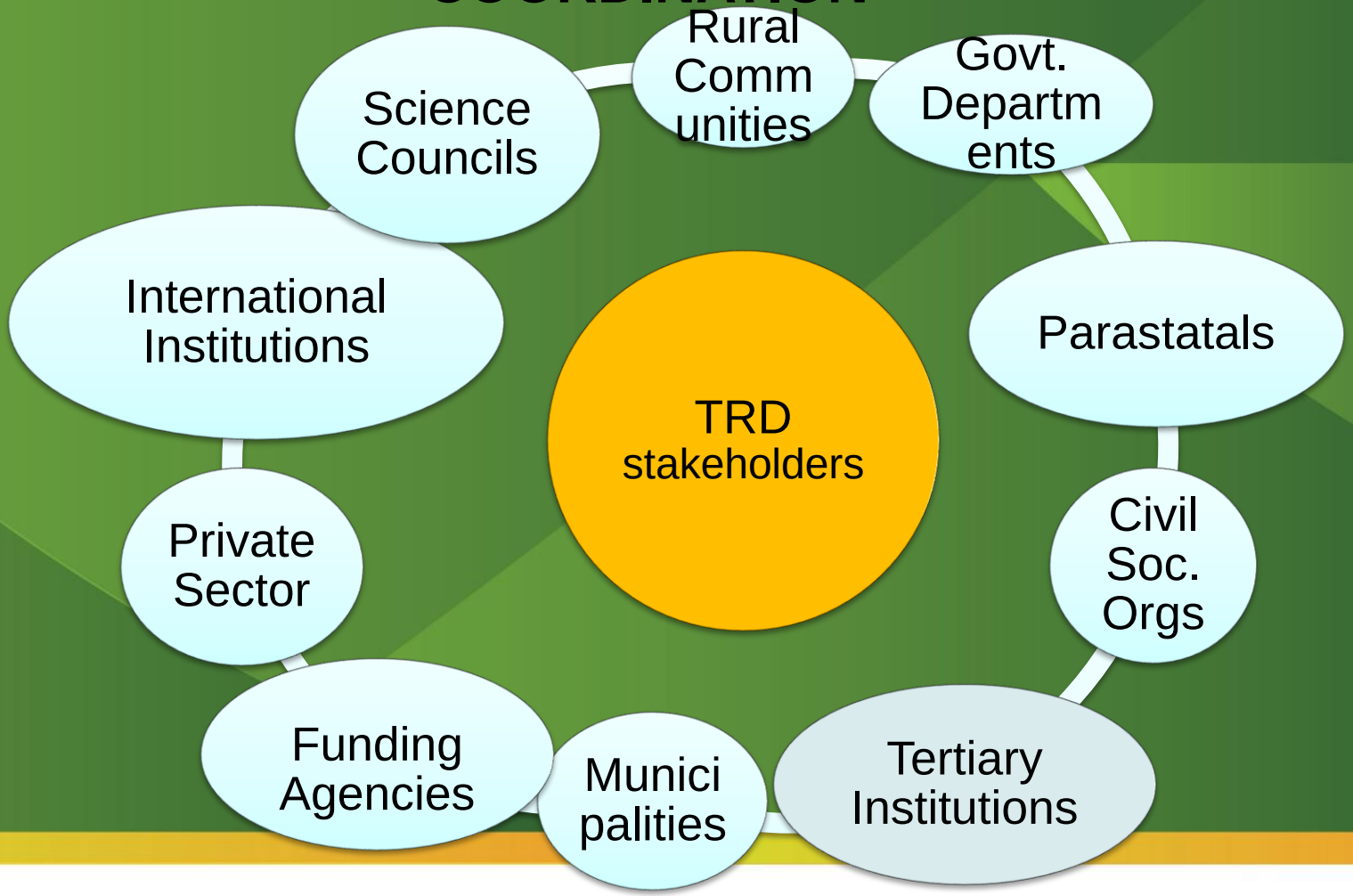
RECOMMENDATIONS cont….

- Youth should be trained and utilized to drive Waste management initiatives including awareness, e.g through the National Youth Programme (National Rural Youth Service Corps - NARYSEC) of the DRDLR. More than **10000** recruited
- **Promote collaboration** by all relevant role players.
  - Stakeholders need to be identified, and their roles be clarified
  - How can we collaborate on waste management during the implementation of **AGRIPARKS**?

EXAMPLE ON RESEARCH STAKEHOLDER COORDINATION



THANK YOU

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