

## Bioplastics Opportunities for a new green economy sector driven by innovation

**The local manufacturing of biobased, non-degradable plastics provide an opportunity to establish an entirely new green economic sector for South Africa. Combined with incentives for local end-use markets and possible localisation commitments by industry for inclusion of biobased plastic content, a bioplastics industry provides opportunity to address the Bioeconomy Strategy (Industrial and environmental sector), and a weakening agricultural sector, while potentially dealing with large volumes of organic waste (Waste RDI Roadmap)**

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Briefing Notes to DST are intended to provide a summary of current social, environmental and policy topics.

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Two events have recently been held on the topic of bioplastics – a Plastics|SA workshop held on the 2 June 2015 and a Department of Environmental Affairs workshop held on the 18 August 2015.

The aim of the Plastics|SA workshop was to discuss the risks and opportunities of bioplastics.

Presentations were made by –

([www.plasticsinfo.co.za/2015/06/02/bioplastics/](http://www.plasticsinfo.co.za/2015/06/02/bioplastics/))

- Prof Christian Bonte (University of Stuttgart, Germany) – An introduction to biopolymers and bioplastics highlighting the distinction between biobased and biodegradable plastics
- Prof Linda Godfrey (Principal Scientist, CSIR) – The impacts of bioplastics on South Africa's waste and secondary resources economy

Given the challenges facing South Africa with respect to waste management, i.e. high levels of illegal dumping and littering, low recycling rates and a backlog in waste service delivery, the aim of the DEA workshop was to assess –

- What are bioplastics and biodegradable plastics
- How government should respond to these new technological developments
- What are the pros and cons of bioplastics and biodegradable plastics

Presentations were made by –

- Prof Linda Godfrey (CSIR) – Bioplastics - Role in SA waste management
- Mr Jacques Lightfoot (PlasticsSA) – Is SA ready for bioplastics – Industry perspective
- Mr Luvuyo Lubobo (Natural Eco Solutions) – Technology on biodegradable plastics
- Ms Annabe Pretorious (SAPRO) – Biodegradable plastics – impact on recycling

Key findings from these workshops were –

- The largest expected growth in bioplastics (300% by 2018) is in biobased, non-degradable plastics, this is being driven largely by CocaCola's commitment to their plant bottle (currently 30% biobased PET, but with a recent announcement to move to a 100% biobased PET bottle)<sup>1</sup>

<sup>1</sup> [www.coca-colacompany.com/plantbottle-technology/plantbottle-20-coca-cola-unveils-worlds-first-pet-plastic-bottle-made-entirely-from-plants](http://www.coca-colacompany.com/plantbottle-technology/plantbottle-20-coca-cola-unveils-worlds-first-pet-plastic-bottle-made-entirely-from-plants)

- There are cases where products from biobased and biodegradable plastic are warranted, e.g. biodegradable plastics being particularly relevant where the content and packaging need to be treated together (i.e. both organic based), such as horticultural products, garden waste plastic bags, certain food services products.
- Bioplastics present both risks and opportunities for South Africa –
  - Risks to traditional plastic recycling from biodegradable plastics (contamination)
  - Opportunities to establish new strategic green industries (e.g. biobased, non-degradable plastics)

### Way forward

How do we harness these opportunities for bioplastic manufacturing in South Africa, especially since none of the expected growth in biobased plastics is predicted from the African continent?

- It was agreed that a Bioplastics Forum be established under the leadership of Plastics|SA partnering with government (DST, DEA, the dti), industry and academia (CSIR). This Forum will meet to map out the strategic opportunities for a local bioplastics industry.
- There are a number of initiatives that should be aligned to leverage new opportunities –
  - Activities at South African Universities and Research Organisations (e.g. CSIR, SMRI, SU, UCT, UKZN) in biorefinery (bio-based chemicals and materials, e.g. bioplastics)
  - DST activities, e.g. Sector Innovation Fund (SIF) (STEP-Bio) (SMRI, PAMSA), Bio-economy strategy, Waste RDI Roadmap

### Recommendation

To explore the feasibility of such a local bioplastics industry, it is recommended that Plastics|SA and DST call together a strategic one-day workshop together with key players (e.g. CSIR, SMRI, PAMSA, the dti, KZN Dept Economic Development) to map out the current gaps in knowledge (e.g. feedstocks, locations, quantities, technologies, markets) and the immediate steps to be implemented to develop a local bioplastics industry, with support for a potential pilot in KwaZulu-Natal province (proximity to the forestry, paper and sugar industries).