



Education Workshop Report

20 – 21 November 2019

Towards Zero Plastics to the Seas of Africa



AFRICAN
marine waste
NETWORK
A programme of Sustainable Seas Trust

NORWAY
IN SOUTH AFRICA



Centre for Environment
Fisheries & Aquaculture
Science



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Workshop Summary

Africa needs to unite and educate its children against plastic pollution, which is increasingly contaminating its oceans and shores. Due to increased use of plastic items in the last half century, coupled with insufficient waste management and recycling (only 4% of Africa's plastic is recycled each year) plastic waste is leeching into the marine environment. The Sustainable Seas Trust (SST) brainstormed solutions to this ever-growing problem, at an education workshop dedicated to "Zero Plastics to the Seas of Africa", with delegates from six other African countries on the 20–21 November 2019. The workshop was held in Port Elizabeth at Isango Gate Boutique Hotel. A summary video capturing the workshop can be viewed here: <https://youtu.be/nqolEH633MQ>.

A total of 48 delegates attended the workshop. Amongst the delegates were educators from six Western Indian Ocean countries (Mozambique, Kenya, Tanzania, Seychelles, Madagascar and Mauritius), subject advisors and curriculum developers from the Department of Education, school teachers and programme evaluation experts.

The main objectives of the workshop were to increase capacity and share knowledge ahead of an international conference to be held in Nelson Mandela Bay in April 2020. With the aim to build a strong team of well-informed teachers and educators to participate in the second International African Marine Waste Network Conference of 2020 to be held from 20–24 April 2020 at the Boardwalk Conference Centre in Port Elizabeth.

Ms Nozi Mbongwa, Head of Education at SST explained that the challenges of waste that Africa is currently facing are much more difficult than rocket science. The enormity of the plastic pollution is so immense that SST hopes to partner with educational authorities to map a way forward so that children learn about plastic pollution in the school curriculum. SST is also working with other experts to develop a curriculum and an educational output in the form of an education resource book titled, *African Guide to Plastics* to enable teachers and others in the educational fields to reach children across Africa.

Waste is a growing problem for the continent, in the words of SST CEO Tony Ribbink *"Africa as a whole is only recycling 4% of its plastics, and that's across 54 countries, so we hope countries will bring their regional and national action plan to the conference in 2020."* he said.

"Plastic pollution is a monster and a problem for many countries in Africa." Kenyan teacher Dorcas Ndinda Muindi *"The eradication of plastic bags has kicked off well although we still have people bringing in pollution from outside the country."*

The workshop programme is provided below:

Day 1: Capacity building and knowledge sharing	
08:00 – 09:00 Registration	
09:00 – 09:05 Welcome	Ms Stacey Webb, Executive Director, SST
09:05 – 09:20 Overview	Ms Nozi Mbongwa, Head of Education, SST

<p>09:20 – 11:05 What works, what doesn't work? Country overview: different educational programmes and resources that have been implemented to teach environmental education with a focus on plastic pollution. 09:20 An overview of plastic pollution in South Africa, Ms Philippa Lascelles 09:35 An overview of plastic pollution in Mozambique, Ms Alice Crociani 09:50 An overview of plastic pollution in Tanzania, Mr Musa Mwalutanile 10:05 An overview of plastic pollution in Kenya, Ms Dorcas Ndinda Muindi 10:20 An overview of plastic pollution in Seychelles, Mr Jude Brian Bouzin 10:35 An overview of plastic pollution in Madagascar, Ms Misaina Razafitsiferana 10:50 An overview of plastic pollution in Mauritius, Dr Ravhee Bholah</p>
<p>11:05 – 11:30 International perspective (United Kingdom) - 'Overview of marine litter education in the Commonwealth Litter Programme (CLiP), insights from the Pacific and the Caribbean.' Ms Bryony Meakins, Marine Litter Scientist, Commonwealth Litter Programme (CLiP)</p>
<p>11:30 – 11:45 Tea break</p>
<p>11:45 – 12:35 What do teachers really need? 11:45 Dr Adele Botha, Teacher and Head of Groenspoor Eco-club, Laerskool Kabega Primary School 12:10 Mr Siya Ntsumpa, Educator and Entrepreneur: Fumisukoma Primary School</p>
<p>12:35 Feedback from the educator's survey Ms Karien Bezuidenhout, Educator, SST</p>
<p>13:00 – 14:00 Lunch</p>
<p>14:00 – 14:20 Discussion – Comparison of the different countries (finding a common ground)</p>
<p>14:20 – 14:50 How do we effectively evaluate an educational programme? Elsabé Engelbrecht, National Director, The Global Travel and Tourism Partnership South Africa 14:50 – 15:50 Workshop – Evaluation methods</p>
<p>15:50 – 16:00 Closure</p>
<p>Day 2 of the Education workshop</p>
<p>08:30 – 09:15 Workshop – Evaluation methods Elsabé Engelbrecht, National Director, The Global Travel and Tourism Partnership South Africa</p>
<p>09:15 – 09:45 Feedback from the groups</p>
<p>09:45 – 09:55 National action plans for education Dr Tony Ribbink, Chief Executive Officer (CEO), SST</p>
<p>09:55 – 10:45 Workshop – Decision hierarchy Dr Tony Ribbink, Chief Executive Officer (CEO), SST</p>
<p>10:45 – 11:00 Tea break</p>
<p>11:00 – 11:50 Feedback from the groups</p>

11:50 – 12:15 Identifying the appropriate practical activities and resources

Ms Nozi Mbongwa, Head of Education, SST

What practical activities are needed to achieve this goal? These activities should encourage all learners to take ownership of their environment, behaviour and waste

Learning styles

Children learn, interpret, organise, represent and understand information in different ways. Some learn best by having information presented to them in visual form; others need hands-on experience (physical) or verbal, aural, logical, social or solitary learning to fully grasp new information. Teachers/educators should, therefore, explore the different learning styles to ensure that the information they provide will lead to positive actions and behavioural change. Here we will identify **activities and resources** needed to achieve the goal *Zero Plastics to the Seas of Africa* within each learning style – interactive session.

12:15 – 13:00 Workshop – Identifying the appropriate practical activities and resources continued**Arranging the activities/resources according to grades**

Dividing the participants into **four groups**, to representing the different school phases. Based on the activities and resources that have been identified as a team (previous session), participants are asked to select the appropriate activities and resources for the following:

Foundation Phase (±5 – 9-year-olds, Grades R-3)

Intermediate Phase (±10 – 12-year-olds, Grade 4-6)

Senior Phase (±13 – 15-year-old, Grade 7-9)

FET Phase (±16 – 18-year-olds, Grade 10 -12)

13:00 – 13:45 Lunch**13:45 – 14:35 Feedback from the groups****14:35 – 15:00 Each country will be invited to take responsibility**

The workshop has identified the resources and activities that could help achieve the goal of *Zero Plastics to the Seas of Africa*. From here onwards, each country will be invited to contribute to this goal by testing identified activities and resources within their home countries. This also means adapting this information to make it more applicable to their country's needs. The activities and resources can be used to add onto or improve each country's/organisation's educational programmes.

15:00 – 15:30 Preparations for the 2nd International African Marine Waste Network Conference – Education, Capacity building and Skills Transfer**15:30 – 15:45 Closure**

Three key messages stood out from the education workshop:

1. There is a need to develop accurate and trustworthy educational resources on plastics;
2. There is a great need for teacher training in Africa;
3. Teachers/educators have a huge role to play, they need to ensure that the correct message is taught in the classroom. Thus, education actions plans are a necessity in Africa. Teachers need to be given the correct information, resources and appropriate training to implement these action plans.

As a way forward, using the tools that were identified at the workshop, SST plans to collaborate with educators to develop educational resources that lead to action. To achieve this, the following will occur in 2020:

1. **Planning:** A series of workshops/meetings where the educators will decide on the materials to be developed. These could be physical or online meetings (webinars);
2. **Division of labour:** each organisation/educator will be invited to contribute by taking responsibility to develop content i.e. write a section or a chapter;
3. **Distribution** of these resources across the African country;
4. **Training:** Teachers will be trained on how to use educational materials through a series of teacher training workshops.





Figure 2. Delegates from South African Department of Education (curriculum developers and subject advisors) engaging with local teachers and educators and Dr Ravhee Bhola (Mauritius Institute of Education).



Figure 3. Bryony Meakins (CLiP, Cefas) and South African educators during a workshop discussion on learning styles.



Figure 4. More workshop discussions. From left: Elsabé Engelbrecht (The Global Travel and Tourism Partnership South Africa), Nozi Mbongwa (SST) and Kyle Briggs from (CLiP, Cefas).



Figure 5. Back row from left: Kyle Briggs (CLiP, Cefas), Dorcas Muindi (Kenya), Musa Mwalutanile (Tanzania), Bryony Meakins (CLiP, Cefas), Jude Bouzin (Seychelles) and Dr Ravhee Bhola (Mauritius)

Front row from left: Alice Crociani (Mozambique), Nozi Mbongwa (SST) and Misaina Razafitsiferana (Madagascar).

Workshop Minutes

Day 1 of the Education Workshop		
Time	Agenda Item	Presenter
08:00 – 09:00	Registration	
09:00 – 09:05	Welcome	Stacey Webb, Executive Director, SST
<p>Miss Webb welcomed everyone, introducing the Sustainable Seas Trust (SST), charitable trust, well recognised for its programme “the African Marine Waste Network (AMWN)”.</p> <p>SST is guided by four pillars:</p> <ol style="list-style-type: none"> 1. Research – if we do not know the problem or its magnitude, we cannot come up with solutions. 2. Education – to be able to make people aware that there is a problem (building capacity with countries throughout Africa). 3. Enterprise Development – to incentivise cleaning the environment and earn a living from waste in low-income communities. 4. Communication – to put the correct information out there and create a wave of change that makes an impact. <p>Ms Webb highlighted that Africa is the second most polluted continent in the world and has an increasing population rate. Currently, Africa has the highest rate of young people than anywhere else in the world. Thus, a major factor in reaching our goal of zero plastics is through education of the youth. SST and its AMWN need help to achieve this goal through partnerships and education. For example, currently, there are misleading sources on recyclables, thus this education workshop is important in developing reliable, trustworthy and accurate educational resources.</p>		
09:05 – 09:20	Overview	Nozi Mbongwa, Head of Education, SST
<p>Ms Mbongwa highlighted the common problem – plastics in our environment. Recognising that the road to zero plastics will be a long, thus, education, capacity building and skills transfer should be ranked as three high priorities, if Africa is to meet the challenges of waste and its management. This could be achieved through:</p> <ol style="list-style-type: none"> 1. Collaboration/partnerships 2. Promoting education in schools and other education facilities 3. Training teachers 4. Development of trustworthy and accurate educational resources 5. Driving youth initiatives 6. Develop an African Waste Academy (for skills development, knowledge and resource sharing). 		

Our problem starts with Early Childhood Development (ECD). Almost 80% of a child's brain potential is developed by the age of four. Thus, we need to teach children while they are young how to address issues of waste.

Educators feel that recycling is not a part of the African culture and it, therefore, does not come naturally. Barriers to recycling include:

1. A dedicated task force of educators;
2. Time to drive the initiative (educators are very busy, and time is extremely valuable to them);
3. Information about recycling (why, how and where to recycle – which varies geographically);
4. Recycling infrastructure and service delivery at schools.

There is no existing curriculum on plastics in Africa. SST is developing a curriculum and an educational output in the form of an education resource book: African Guide to Plastics.

Ms Mbongwa identified the objectives of the workshop:

1. Encourage capacity building and knowledge sharing;
2. Identify/develop the appropriate educational resources needed by teachers and educators to achieve Zero Plastics to the Seas of Africa;
3. Develop a plan/structure of an effective educational programme(s) that can be rolled out by various organisations to work towards Zero Plastics to the Seas of Africa;
4. Building a strong team of well-informed teachers and educators to participate in the 2nd International African Marine Waste Network Conference in 2020.

09:20	An overview of plastic pollution in South Africa	Ms Philippa Lascelles
<p>Ms Lascelles focused in on South Africa, outlining the following:</p> <ul style="list-style-type: none"> • South Africa is highly dependent on coal energy for plastic production. • She touched on the National development plan - Operation Phakisa. • South Africa is in the process of implementing the Extended Producer Responsibilities Programmes where producers are held responsible for what they produce, such as packaging. • The curriculum for pollution is there but the information is not always accurate. • We must encourage everyone to see waste as a valuable commodity and not a problem. • Recycling for at source crucial as it limits incinerated waste and waste that goes to landfills. 		
09:35	An overview of plastic pollution in Mozambique	Ms Alice Crociani
<p>Ms Crociani focused in on Mozambique, outlining the following:</p> <ul style="list-style-type: none"> • Mozambique is rich in biodiversity in marine and land. If it is not protected from pollution, there will be contamination of the food chain, jeopardising the marine and land life. 		

<ul style="list-style-type: none"> • People in Mozambique are not very aware of or do not believe there is a pollution problem. • Pollution work is conducted in Quirimbas National Park. • Litter in Mozambique is very common in cities and land. • Mozambique has a law where one cannot sell plastic bags of certain thickness. • There is always an initiative in schools to inspire the youth to resolve the litter issues. For example, fish day, plastic day and others are used. • Clean-up days are used to inspire youth, the waste collected is used for their art projects. • Application development on smartphones for education on litter and promotion on recycling is important and necessary for the future. • Currently, in Maputo, there are nets in some of the rivers used to gather plastic waste. 		
09:50	An overview of plastic pollution in Tanzania	Mr Musa Mwalutanile
<p>Mr Mwalutanile focused in on Tanzania, outlining the following:</p> <ul style="list-style-type: none"> • The first Saturday of each month is a clean-up day for every citizen. • Urban authorities are responsible for implementing the projects but lack funding to implement every plan. • In Tanzania, some plastics have been banned by government officials. For example, plastic carrier bags. It is believed to have reduced plastic pollution in many areas. 		
10:05	An overview of plastic pollution in Kenya	Ms Dorcas Ndinda Muindi
<p>Ms Muindi focused in on Kenya, outlining the following:</p> <ul style="list-style-type: none"> • Kenya is now using re-usable carrier bags as opposed to using former single-use plastic bags. • National Clean-ups are annual. • Every third weekend of the month is a clean-up day. • Primary school contains the world's future leaders and therefore it is important to implement the correct educational curriculum which contains information on pollution. • DIY (Do It Yourself) programmes are demonstrated to locals. • The government ban on plastic – if you are caught with a plastic bag (single-use plastic) you pay a fine. If you cannot afford fine, you go to jail. • Behavioural changes are a challenge as it is difficult to break habits for the older population. • Inconsistent policies need to become consistent. • Laws should be understandable for everyone to comprehend and abide to. • Proper waste management is still a challenge for the municipality. • Knowledge is power “Together we can hold hands and embrace the Baobab tree”. 		
10:20	An overview of plastic pollution in Seychelles	Mr Jude Brian Bouzin
<p>Mr Bouzin focused in on Seychelles, outlining the following:</p> <ul style="list-style-type: none"> • In school, learners are encouraged to create artwork from recycled litter and write poems about pollution. • Environmental clubs are encouraged in schools. • Workshops are held with organisations and businesses to find solutions to a circular economy. 		

10:35	An overview of plastic pollution in Madagascar	Ms Misaina Razafitsiferana
<p>Ms Razafitsiferana focused in on Madagascar, outlining the following:</p> <ul style="list-style-type: none"> • Citizens are not aware of the impacts of throwing waste everywhere. • Major health problems in Madagascar includes nutritional deficiency. • A lot of children are uneducated and are therefore illiterate and cannot understand issues associated with waste. • Too many people are using marine sources as public bathrooms, it is a cultural norm. • Neither sorting nor law enforcement for pollution are in place. • Malagasy people are AWARE of the litter problem, but they do not UNDERSTAND the extent of it or how to improve the situation. • Non-Government Organisations (NGOs) work more than the education department in educating the youth. 		
10:50	An overview of plastic pollution in Mauritius	Dr Ravhee Bholah
<p>Dr Bholah focused in on Mauritius, outlining the following:</p> <ul style="list-style-type: none"> • Before 2005, pollution was part of the curriculum, but it was not well structured. • The curriculum addresses concepts only; they want students to address problem-solving skills. • Education for sustainable development is the main focus. • To inspire change, you cannot just speak to learners but have to implement action learning. • Culture element should be implemented by teachers by being proactive. • Appointing students to be monitors amongst fellow students to prevent littering. • Some teachers are willing and optimistic to introduce curriculum and projects, but the management of their schools are not supportive. • Learning holistically makes more of an impact and change. 		
11:05 – 11:30	International perspective (United Kingdom) - 'Overview of marine litter education in the Commonwealth Litter Programme (CLiP), insights from the Pacific and the Caribbean.'	Ms Bryony Meakins, Marine Litter Scientist, Commonwealth Litter Programme (CLiP)
<p>Ms Meakins expanded globally, outlining the following:</p> <ul style="list-style-type: none"> • Overview of marine litter education in the Commonwealth Litter Programme (CLiP). • They conduct several research and education projects with several partners across the globe. • The South African CLiP work included: <ul style="list-style-type: none"> ○ CSIR (Council for Scientific and Industrial Research) - DSI (Department for Science and Innovation) - Cefas Marine plastic litter workshop ○ Setting up two microplastic laboratories (South Africa Environmental Observation Network [SAEON] and Department of Environment, Fisheries and Aquaculture Science [DEFF]) Port of Durban microplastic study ○ Macro litter surveys in Durban, with the University of KwaZulu-Natal (UKZN) ○ Microplastic baseline assessment in biota with DAFF 		

<ul style="list-style-type: none"> ○ Waste Classification Study in eThekweni and The City of Cape Town with Asia Pacific Waste Consultants (APWC) ○ Socioeconomics study on plastic packaging ○ Fisheries training course on marine litter with World Wildlife Fund (WWF-SA) ○ Desk top study on fisheries in South Africa, from a marine litter perspective ○ Port Authority Audit with APWC ○ Community outreach and removal/reduction pilot study with Green Corridor ○ Innovation Conference: STEM the tide of plastic waste in Africa, with SST, STEM contest feeding into the STEM conference ○ The STOMP awards (Stamp Out Marine Plastic Pollution) with Green Corridor (STEM contest) ○ Education workshop in partnership with SST ○ Awareness display during Marine Week with SAAMBR ○ Beach outreach with a mobile laboratory in partnership with Waves for Change <ul style="list-style-type: none"> ● Marine Litter Education Packs – CLiP believes that one of the key ways to tackle marine litter is to educate children, one can make lasting changes for future generations. Therefore, it forms a key part in one of the pillars of the CLiP Project. Cefas wanted to provide resources that would last beyond the initial scope of CLiP, and so produced education packs about marine litter. We currently have packs for primary and secondary school children, translated in English, French and Bislama (for the Pacific). ● The education packs were developed making use of several existing education resources surrounding marine litter. The first lesson focused around what is marine litter. For the primary school packs, the packs provided the background for the teachers along with an activity and a fun worksheet. The secondary pack works along with the same structure with more advanced activities. 		
Tea break		
11:45	What do teachers really need?	Dr Adele Botha, Teacher and Head of Groenspoor Eco-club, Laerskool Kabega Primary School
<p>Dr Botha focused on what is needed by teachers, outlining the following:</p> <ul style="list-style-type: none"> ● Dr Botha spoke about the school's green initiatives and fight against plastic waste. ● They have a library built with eco-bricks. ● They used incentives to create litter collection. ● They have found that operations MUST be continuous and sustainable. ● Civvies days for black and white and green days if you bring newspaper or bottle tops etc. ● It is possible to integrate recycling in any grade in most subjects. ● Every cent made from the recycling is put back into funding green activities. 		
12:10	What do teachers really need?	Mr Siya Ntsumpa, Educator and Entrepreneur: Fumisukoma Primary School and Give Them Wings Foundation
<p>Mr Ntsumpa focused on what is needed by teachers, outlining the following:</p> <ul style="list-style-type: none"> ● Through his foundation, Mr Ntsumpa helps schools to develop environmental clubs. ● Learners pick up litter during break time at their school and sort it. 		

<ul style="list-style-type: none"> • Due to inconsistent municipal collection and frequent winds, the litter blows back to school fences, even if it was previously cleaned. Therefore, it is important to the surrounding of the school as well. • Educate learners about litter through fun activities. • Physical education at school is used to make eco-bricks. • Create dialogue and narrative between students to tackle solutions. • System creation to prevent regression to polluting grounds i.e. organising clean-up activities. • At Fumisukoma Primary, they use their national award-winning garden to give back to the community. • Litter is attached to politics. Structures in the community have a misinformative narrative of employment. If a political party has promised job opportunities for waste pickers, some of the locals will litter deliberately to sustain their jobs. • Plastic bags put into the eco-bricks have written messages on them. When the plastics breakdown, the future generation will read those messages. This inspires children about the future, as well as, learning about the time plastic takes for plastics to break down. 		
12:35	Feedback from the educator's survey	Ms Karien Bezuidenhout, Educator, SST
<p>Ms Bezuidenhout introduced the educators survey, outlining the following:</p> <ul style="list-style-type: none"> • The goals of the surveys were to (1) identify gaps in the coverage of plastic pollution in curricula and (2) identify resources required by educators. • According to the surveys, the most visible litter is plastic bottles and wraps. • Only 45% of the teachers said they were confident about their understanding of plastic pollution. • 100% of the teachers advise learners that plastic pollution is bad the environment, 69% for humans and 49% for the economy. • Only 38% teaches about the types of plastics. • 73% said plastic pollution is not covered well in curricula. • What resources do educators need to teach on plastic pollution: <ul style="list-style-type: none"> ○ Plastic experts (input, visits) ○ Information, content guides ○ Teacher training ○ Lesson plans and assessments ○ Greater municipal involvement ○ School trips to landfills ○ School projects involving local communities ○ Videos ○ Recycling containers at schools ○ Beach litter protocols 		
Lunch		
14:00 – 14:20	Discussion – Comparison of the different countries (finding a common ground)	Dr Ravhee Bholah

The following is a brief of the points captured during the above discussion.

Major Issues

- Plastic pollution is a major concern in each participating country.
- Apart from its environmental and health impacts (death of marine life and wildlife); direct or indirect air, water and soil pollution related to plastic, blocked drainage systems, diseases (*e.g plague, cholera, chikungunya, malaria, dengue*), plastic pollution has also various economic implications in terms of waste management (collection, transportation and disposal of waste, transport to landfills/recycling industry) and impact on tourist sector (Mozambique, Mauritius).
- Both Seychelles and Mauritius, being small island states have limited area for storage/disposal of waste.

National Initiatives

- Constitution of each country stipulates the need for ensuring a better environment for its citizens; thus, implying their right to have a clean and safe environment but at the same time, their responsibility to protect their environment.
- Most countries have established organisational structures and mechanisms for waste management. Some countries have integrated waste management strategic plans (*e.g. Mauritius, Mozambique*).
- Government Organisations (GOs) and several non-profit organisations (NPOs) and NGO's are playing an active role in awareness-raising and sensitisation programmes against plastic (microplastic) in each country in formal, informal and non-formal ways.
 - Some of these organisations have developed informative and interesting resource materials on Environmental Education (EE), including waste management for various target audience. Development of guidelines for school recycling (South Africa) and resource materials (*e.g. pamphlets, flyers on waste/plastic*).
- The organisation of national **clean-up campaigns** (*e.g. beach and other site clean-ups*).
 - Most of them are working in collaboration with schools in such endeavours.
- Some countries have **local recycling firms or industries** to take care of plastics.
- Most countries have **strict laws and regulations** against plastics:
 - Plastic bags banned or prohibition of the single-use plastic in many countries including the Republic of Mauritius, Tanzania, Kenya and Seychelles.
 - Enforcement against plastics at various levels (port of entry in the country, at shops and marketplaces).
 - Excise duty of Rs2/unit of plastic (Mauritius).
- These countries have also proposed alternative bags or solutions to plastic bags (*e.g. plastic bags made up from starch products*).

Awareness on plastic pollution present in both formal, informal and non-formal education.

Formal Education

- Apart from Madagascar, most countries address a range of concepts related to waste or plastics (e.g. use/property of plastic (impermeable, insulation), plastic pollution, 3R's or 5R's) but to a different extent in their school curriculum at mainly primary and secondary levels. For instance, plastic is not well covered in the school curriculum of South Africa.
- Concepts of plastic are present in several carrier subjects (science, geography, art and languages, marine science, Environmental Education (EE), education for citizenship/civic education).
 - Some countries are incorporating pertinent and contemporary issues (e.g. plastic) in the school curriculum (e.g. Kenya/Mauritius) and creating awareness and empowerment (Kenya).
 - EE will be introduced in Grade 4 and 6 in Mozambique as from 2020.
- School textbooks cover concepts related to plastics, including plastic pollution. For instance, elements of plastic pollution are present in the manual of Environmental Education in Mozambique.
 - Incorrect information on plastics or related misconception was noted in some textbooks in South Africa.
- Different pedagogies, including several active teaching and learning strategies (e.g. group work, inquiry, role play, poem, song, project-based learning) are being used to address concepts related to plastics in schools.
- Most schools also consult different resources materials developed by different governmental bodies (e.g. Ministry of Environment), NGOs or other organisations.
- As part of the school curriculum, students are also being taught about the segregation of wastes in different bins (biodegradable, plastic, glass).
- Main stakeholders involved against plastic pollution: school (management, teaching and non-teaching staff, students, parents, local community, NGOs and decision-makers including politicians).
- At tertiary education institutions in most countries, a range of courses both at undergrad and postgrad levels cover waste management including plastic.
 - Teacher training Institutions are empowering their pre-primary, primary and secondary school teachers through various teacher education programmes. Plastic related concepts are mostly covered in environmental education and education for sustainable development modules.

Informal and Non-Formal Education

- In most countries, schools participate in several projects related to plastic pollution. These projects or activities can be initiated by schools or local community, government or NGOs or private stakeholders.
- Schools often participate in National Eco-school or exciting projects organised by governmental bodies, NGOs or private stakeholders.
- Most schools have different clubs (e.g. Environment club, Eco-school club and Recycling club, Scout club) that support various school activities.

- Some of the activities presently being conducted in most countries include waste outreach programmes, projects (e.g. including litter auditing), artwork exhibition, field trips, fun and games, clean-up campaigns.
- These activities mostly involve 3R's principle and allow some schools to work together with other organisations and generate funds by (i) collecting plastics and selling them to specific companies or (ii) reusing the plastics to design innovative materials (e.g. Production of Tutu desk) and selling them.
- Most of these activities emphasise the importance of creating a safe and clean environment and enabling students to develop appropriate positive attitudes towards the environment (e.g. not littering, use of signposts against littering in school and community, use of proper bins [segregation of waste]).
- Most countries celebrate international and national events and showcase a range of items related to waste management;
 - World Clean-up Day
 - World Environment Day
 - International Biodiversity Day
 - International Plastic Bag Free Day (3rd July) – Mozambique
 - International Coastal Clean-Up (by Ocean Conservancy through Kenya Conservation of Aquatic Resources in Kenya)
 - Public Cleanliness Day (Tanzania)
 - Environmental Education Day (Kenya)
- Most of these activities are conducted through extracurricular activities at school and these are often supported by government organisations but mostly by NGOs, NPOs, local community and private sectors.
- There is active involvement of multi-stakeholders (teaching and non-teaching staff, students, parents, local community and members from NGOs and NPOs) in the various extracurricular or outreach activities/programmes.

Successes

- The banning of single-use plastics has occurred in most countries represented at the workshop, with the use of alternative bags (e.g. Jute) in some countries.
- Exemplary leadership in connection with extracurricular activities related to waste/plastic management at school levels.
- Developing a positive school culture for a safe and clean environment.
- Constant celebration of national clean-up day.
- Sensitisation and awareness campaigns, national day for clean-up; involvement of decision-makers in such campaigns.

Challenges

- Lack of clear information (environmental conservation awareness), effective plastic waste management.
- Despite awareness campaigns, people still do not use the right bin for the correct waste.

- Waste segregation is a paradox in some countries. Although different wastes are segregated, these are all collected by the same vehicle.
- Awareness-raising and sensitisation programmes or events restricted in terms of time and space.
- No proper place to dispose and store the waste collected.
- Financial constraints to support waste management (transport of waste/plastic to landfill or recycling industry).
- Most countries do not pay for waste management.
 - In some countries (e.g. Tanzania), there is reluctance of urban dwellers to pay for the services.
- Lack of enforcement against the use of plastic and its disposal at different levels in and across each country.
- Lack of or inadequate access to resource materials on waste/plastic in most countries.
- It is a myth or wrong belief that creating waste provides job opportunities.
- Positive behavioural change in human beings take time.
- Lack of research on the impact of plastics especially microplastics in most countries (e.g. evaluation of education on students for a positive behavioural change).

Recommendations

- Ensure concepts related to plastic and its appropriate management are further mainstreamed in the school curriculums.
- All activities related to plastic must be linked to the school curriculums to ensure holistic learning of related concepts.
- Ensure relevant pedagogy is being used to address concepts related to plastic in any learning contexts.
- Need for a clear and defined national policy for plastic waste management.
- Access to necessary resource materials on plastics must be increased for all schools and other target audiences.
- Further sensitisation and capacity building sessions for different target groups including teachers are required.
- Sites with substantial amounts of plastic waste entering oceans, rivers, beaches and lands must be mapped and appropriate measures (e.g. in Mozambique) must be taken. Proper drainage and sewerage system are needed in towns and cities (Kenya).
- Continue adopting 4R's for plastic management at all levels.
- Continue enforcement against plastics at all levels in the country.
- Seek support from all stakeholders including politicians in the battle against plastic pollution.

14:20 – 16:00

How do we effectively evaluate an educational programme?

Elsabé Engelbrecht, National Director, The Global Travel and Tourism Partnership South Africa

Ms Engelbrecht developed an assessment booklet for the education workshop. She went through the booklet through the presentation covering all aspects of conduction an evaluation. A summary of her talk is provided as nine principles below:

- **Principle 1** - Assessment should be valid. Validity ensures that assessment tasks and associated criteria effectively measure learner attainment of the intended learning material at the appropriate level.
- **Principle 2** - Assessment should be reliable and consistent. This requires clear and consistent processes for the setting, marking and moderation of assessment tasks.
- **Principle 3** - Information about assessment should be explicit, accessible and transparent (clear), accurate, consistent and timely information on assessment tasks and procedures should be made available to learners, staff and other external assessors or examiners.
- **Principle 4** - Assessment should be inclusive and equitable. As far as is possible without compromising academic standards, inclusive and equitable assessment should ensure that tasks and procedures do not disadvantage any group or individual.
- **Principle 5** - Assessment should be an integral part of programme design and should relate directly to the programme aims and learning outcomes. Assessment tasks should primarily reflect the nature of the discipline or subject but should also ensure that learners have the opportunity to develop a range of generic skills and capabilities.
- **Principle 6** - The amount of assessed work should be manageable. The scheduling of assignments and the amount of assessed work required should provide a reliable and valid profile of achievement without overloading staff or learners.
- **Principle 7** - Formative and summative assessment should be incorporated into programmes to ensure that the purposes of assessment are adequately addressed. Several programmes may also wish to include diagnostic assessments.
- **Principle 8** - Timely feedback that promotes learning and facilitates improvement should be an integral part of the assessment process. Learners are entitled to feedback on submitted formative assessment tasks, and on summative tasks, where appropriate. The nature, extent and timing of feedback for each assessment task should be made clear to learners in advance.
- **Principle 9** - Staff development. Policy and strategy should include assessment. All those involved in the assessment of learners must be competent to undertake their roles and responsibilities.

Day 2 of the Education Workshop

08:30 – 09:45	Workshop – Evaluation methods	Elsabé Engelbrecht, National Director, The Global Travel and Tourism Partnership South Africa
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A workshop session on evaluation methods was covered carried out by Ms Engelbrecht.

Activity/question 1:

- Getting feedback (mechanism): trying to get understanding beforehand. Take before and after pictures. Recognition of prior learning.
- You must have a set of objectives. See if they were met at the given time. What do we ask on questionnaires?
 - What litter do you bring to school?
 - What time frame do you use?
 - How was your school changed by recycling?
 - How have you helped the sea animals?
- Conduct audit: needs, attendance and resources of the school.
- Evaluation: what the students did, how they did it, outcomes, change in culture in school before, during and after project.

- Target audience: Roll out programmes and give it time. Long or short evaluation appropriate? Be able to track learning. Ask learners to explain what they did during the day (use emojis, ask the learners to act it out, tell stories).

Activity/question 2:

- The impact must promote the participation of the community.
- Ask learners how recycling helped someone inside and outside the community.
- Spread the gospel of recycling at church, old age homes, etc.
- Surveys are one of the elements of an evaluation.
- Involve the community in school shows. Develop food gardens for the community. Invite the community to school clean-ups initiative. Develop environmental clubs for kids and parents.
- Parents' nights can be used to increase knowledge of litter and recycling at home and at school. Use waste diaries.
- Consider the rippling effect of internal recycling and knowledge on the external community.

Activity/question 3:

- Language barrier (written questionnaires). Using Emojis is an innovative idea to overcome language barriers and appealing to the youth.
- Spreading messages at home. Newsletters and parents' evenings.
- Culture (social) barrier e.g. SA has 11 languages and Kenya has two. We must be sensitive to communication.
- Time is important, reporting back on what you've done (questionnaires are time-consuming).
- Misinformation or illiterate community may affect data collection.

09:45 – 10:45

National action plans for education

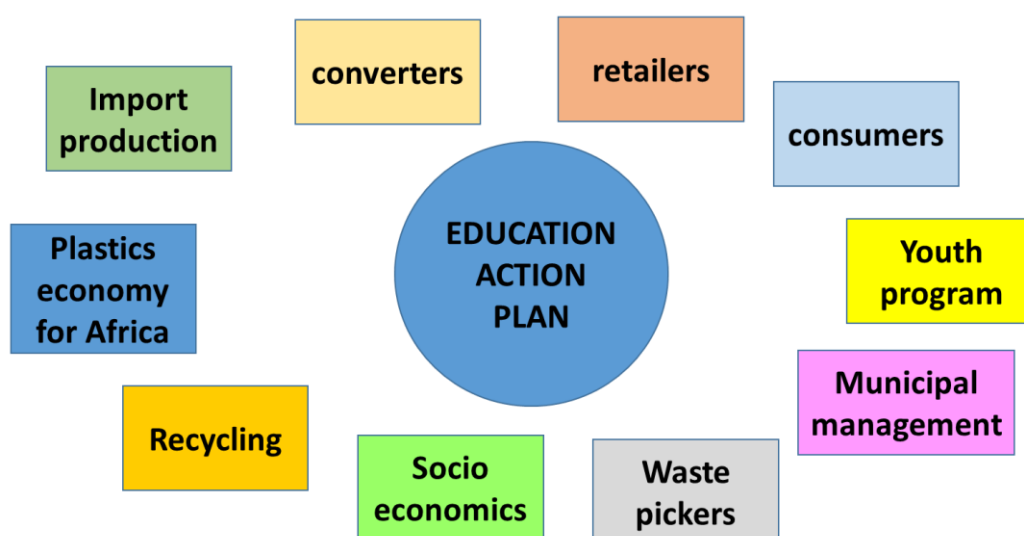
Dr Tony Ribbink, Chief Executive Officer (CEO), SST

Dr Ribbink introduced the concept for national action plans for education, outlining the following:

- What does "towards zero plastics" mean?
- World needs action plans to tackle plastic waste. The action plans need to be easily understood to be implemented.
- Pioneers of education: as the first degeneration of educators to teach about zero plastics. One needs to think about what is being pioneered. Nation leaders need to act and lead the movement (make educated, informed decisions). Therefore, educators are needed to instil information from every source to influence decision-makers.
- Building capacity of teachers to implement zero plastic in the curriculum.
- One needs to broaden capacity in building the nation. It cannot be just students and educators; it should extend to everybody (no gaps).
- If the leaders have the right information, they will be more likely to change the community through small implementations without making drastic decisions.
- Communities create SIGNIFICANT amount of litter, if they are not educated, we make no difference.
- Recycling is only effective if there are actual factories that are doing the recycling. Is it cost-effective? Would it help to have factories between two major countries? Africa only recycles 4% of plastics. One needs to define our terms of recycling.

- On conveyer-belts at the end, non-recyclable plastics are taken to landfills. One needs to implement plans to overcome this.
- There needs to be an enabling policy environment.
- Questions to keep in mind:
 - Do we teach plastic waste? Why?
 - Should we focus on macro, meso or microplastics?
 - Do we have resources to develop programmes?
 - Do we focus on marine or land?
- Rocket science is easy being based on logic and mathematics but what we are dealing with is far more complicated as we are challenging human behaviour and habits.
- What is taught about non-recyclable plastics (the biggest problem)?
- What about climate and plastics and health and plastics?
- There needs to be a focus on education action plans and focus on youth programmes.
- Dr Ribbink divided the large group into four smaller groups to discuss the development of action plans for the groups/sectors shown in the diagram below. The four groups, however, only focused on retailers, consumers, youth program and municipality management.

Develop action plans for some of these



Tea break

11:00 – 11:50

Feedback from the groups

After the breakaway session, the groups provided feedback on the action plans they had developed, summarised in a form of diagrams below.

Diagram 1: Action plan for municipalities (See page 24)

Diagram 2: Action plan for the youth (See page 25)

Diagram 3: Action plan for consumers (See pages 26 and 27)

Diagram 4: Action plan for retailers (See page 28)

11:50 – 12:15	Identifying the appropriate practical activities and resources	Nozi Mbongwa, Head of Education, SST
<p>Ms Nozi led an interactive discussion on identifying the appropriate practical activities and resources, which is summarised below.</p> <p>Children learn, interpret, organise, represent, and understand information in difference ways. Some learn best by having information presented to them in visual form; others need hands-on experience (physical) or verbal, aural, logical, social or solitary learning to fully grasp new information. Teachers/educators should, therefore, explore the different learning styles to ensure that the information they provide will lead to positive actions and behavioural change.</p> <p>What are the learning styles?</p> <ul style="list-style-type: none"> • Linguistic learner: <ul style="list-style-type: none"> ○ Skills reading, speaking, writing, listening. • Naturalist: <ul style="list-style-type: none"> ○ Working with and experiencing nature. Enjoying observing. • Musical/ Rhythmic learner: <ul style="list-style-type: none"> ○ Making songs/ melody. • Kinaesthetic (physical): <ul style="list-style-type: none"> ○ Physical, curious, touching. • Visual learner: <ul style="list-style-type: none"> ○ Diagrams, graphs, illustrations. • Logical/ mathematical: <ul style="list-style-type: none"> ○ Technology, patterns, number, categories, equations. • Interpersonal: <ul style="list-style-type: none"> ○ Relating to others. Team players and group discussions. • Intrapersonal: <ul style="list-style-type: none"> ○ Prefer to work alone and challenging goals. Internal sources rather than external. 		
Lunch		
13:45 – 14:35	Feedback from the groups	
<p>How to engage/ teach different types of learners:</p> <ul style="list-style-type: none"> • Linguistic <ul style="list-style-type: none"> ○ Oral presentations ○ Stories (completing storylines, filling in missing words) ○ Creative writing (create own superhero) ○ Comprehension ○ Speeches ○ Debates • Musical <ul style="list-style-type: none"> ○ Rhymes ○ Make up own raps 		

<ul style="list-style-type: none"> ○ Musical instruments ○ Roleplay and performances in class based on the theme of the work ○ Concerts ○ Song writing ○ Song trivia (what's the message?) <ul style="list-style-type: none"> • Visual: <ul style="list-style-type: none"> ○ Posters ○ Artwork ○ Illustrations ○ Video clips ○ Make an app with music ○ Concept/ mind mapping ○ Making cartoons ○ Documentaries ○ Flashcards ○ Crossword puzzles ○ Photographs before and after etc. ○ Exhibitions • Interpersonal <ul style="list-style-type: none"> ○ Pair/group activities ○ Role play ○ Group clean-ups ○ School clubs ○ Allow space for everyone to talk ○ Debates • Intrapersonal <ul style="list-style-type: none"> ○ Research tasks (report writing) ○ Personal assignments (do not force group work) • Naturalists <ul style="list-style-type: none"> ○ Visits to recycling plant/ aquariums, camps, beach clean-ups ○ Nature table (show and tell with things from home) 		
14:35 – 15:00	Each country will be invited to take responsibility	Nozi Mbongwa, Head of Education, SST
<p>Through a discussion, Ms Nozi invited each country to embrace its responsibility through the following points:</p> <ul style="list-style-type: none"> • Do you think what we have identified in the workshop can be used in your own classroom? Could you implement it personally? • We may need more resources. We could start in our own classrooms, but it needs to be continuous amongst all schools. • It is already in place in the curriculum. • A lot of the curriculum overlaps in many styles of learning. We need to be able to bring it together through an integrated approach. We need to spread these suggested points with colleagues and not just keep it to ourselves. 		

15:00 – 15:30	Preparations for the 2nd International African Marine Waste Network Conference – Education, Capacity building and Skills Transfer	Nozi Mbongwa, Head of Education, SST
All the educators are keen to attend the AMWN conference.		
15:30 – 15:45	Closure and words of thanks	Nozi Mbongwa and Dr Tony Ribbink, SST

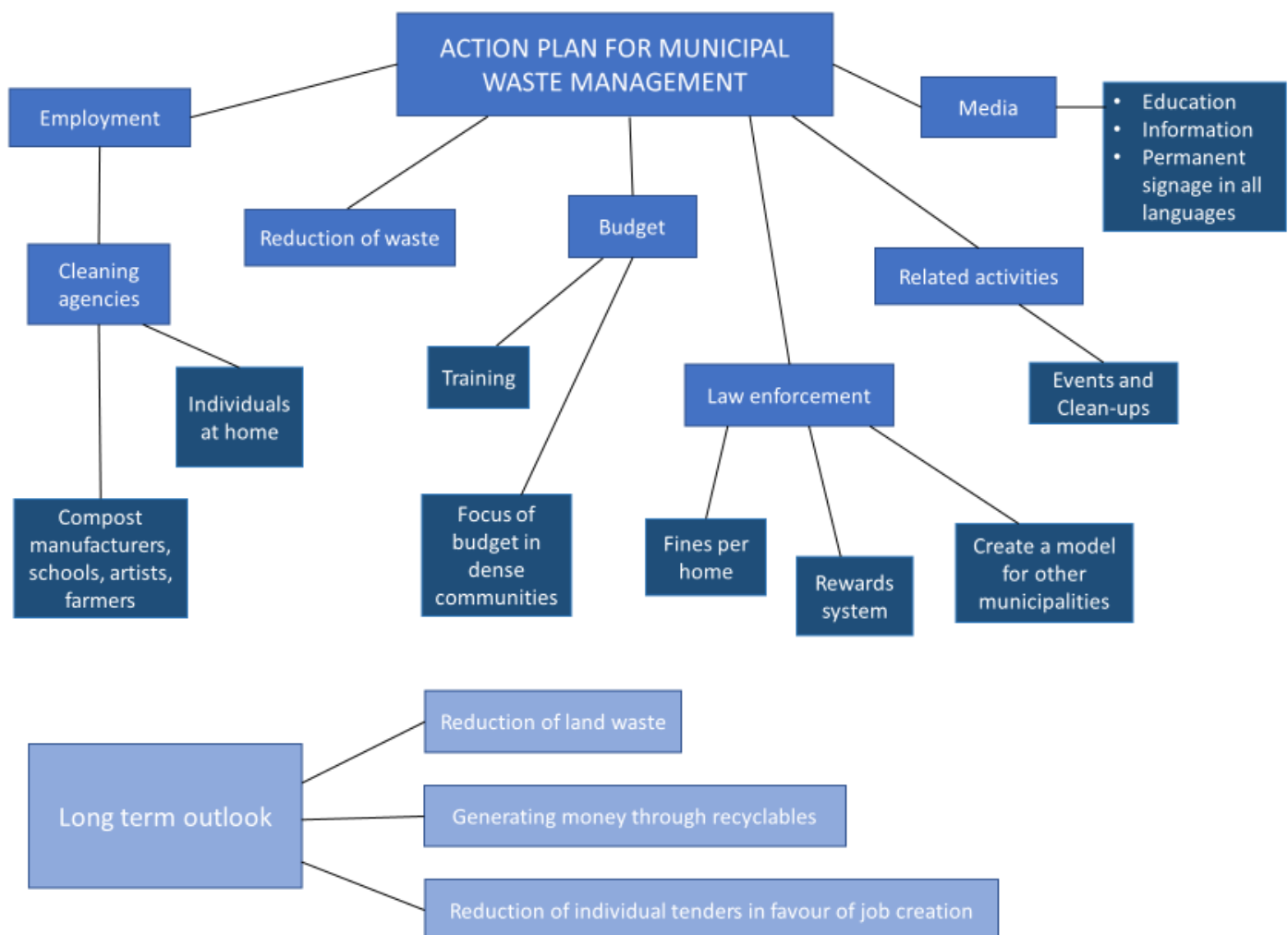


Diagram 1: Action plan for municipalities


Youth		
<ul style="list-style-type: none">• Get rid of existing plastics and reducing plastic in the environment• Changing mindsets towards plastic (resource, not waste)		
Input knowledge	Centre for Excellence	Identify enthusiastic teachers to support
Build capacity for schools		Develop plastic repurposing crafts to support curriculum coverage
Foster positive competition between neighbouring schools		Interschools quiz/competition
Support education department initiatives		Provide sharing platforms between schools
Set objectives and link to curriculum coverage	Teacher Materials and Resources	Provide online easily accessible resources
How to implement waste audits/clean-ups		Provide print-rich age-appropriate resource
Mascot	Road Shows	Build knowledge
Clean-ups		Encourage behaviour change
Professional	Video and App	Interactive
Multi-lingual		
		
Resources	Link with corporates for funding/sponsorship	Support Sustainable Initiatives
Merchandise		

Diagram 2: Action plan for the youth

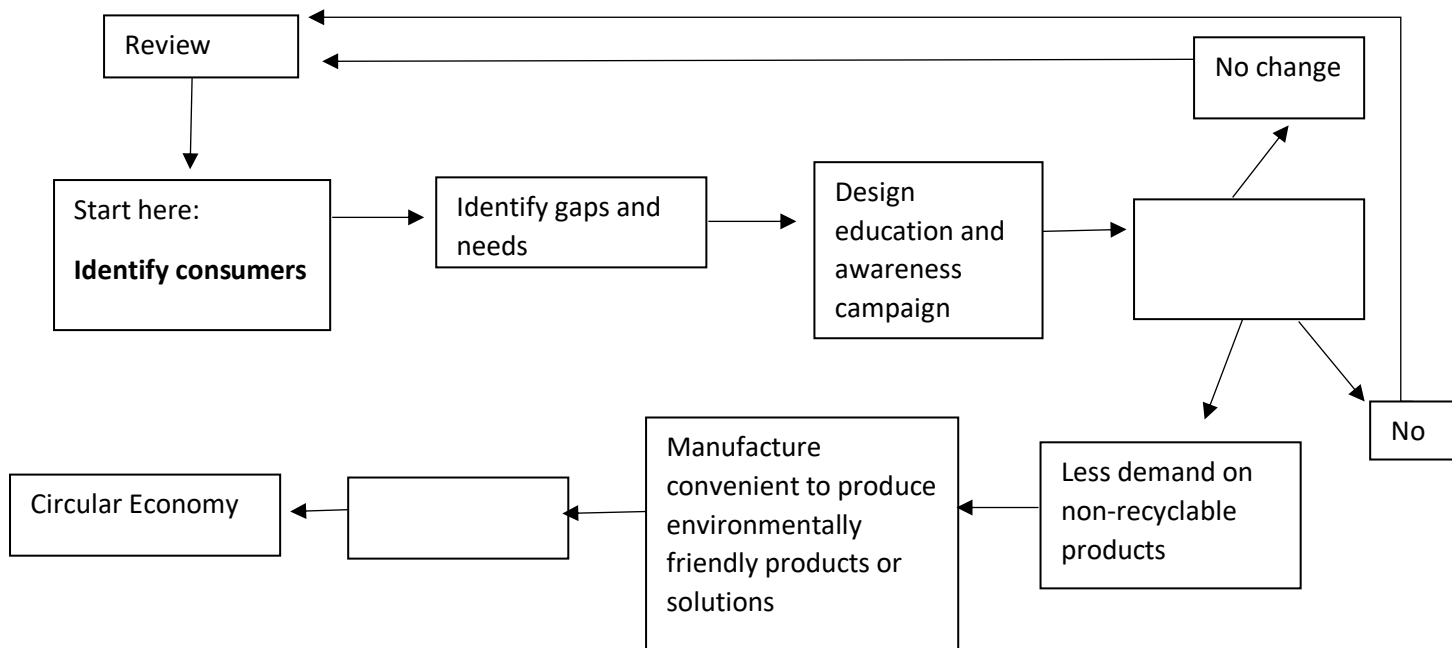


Diagram 3A: Action plan for consumers

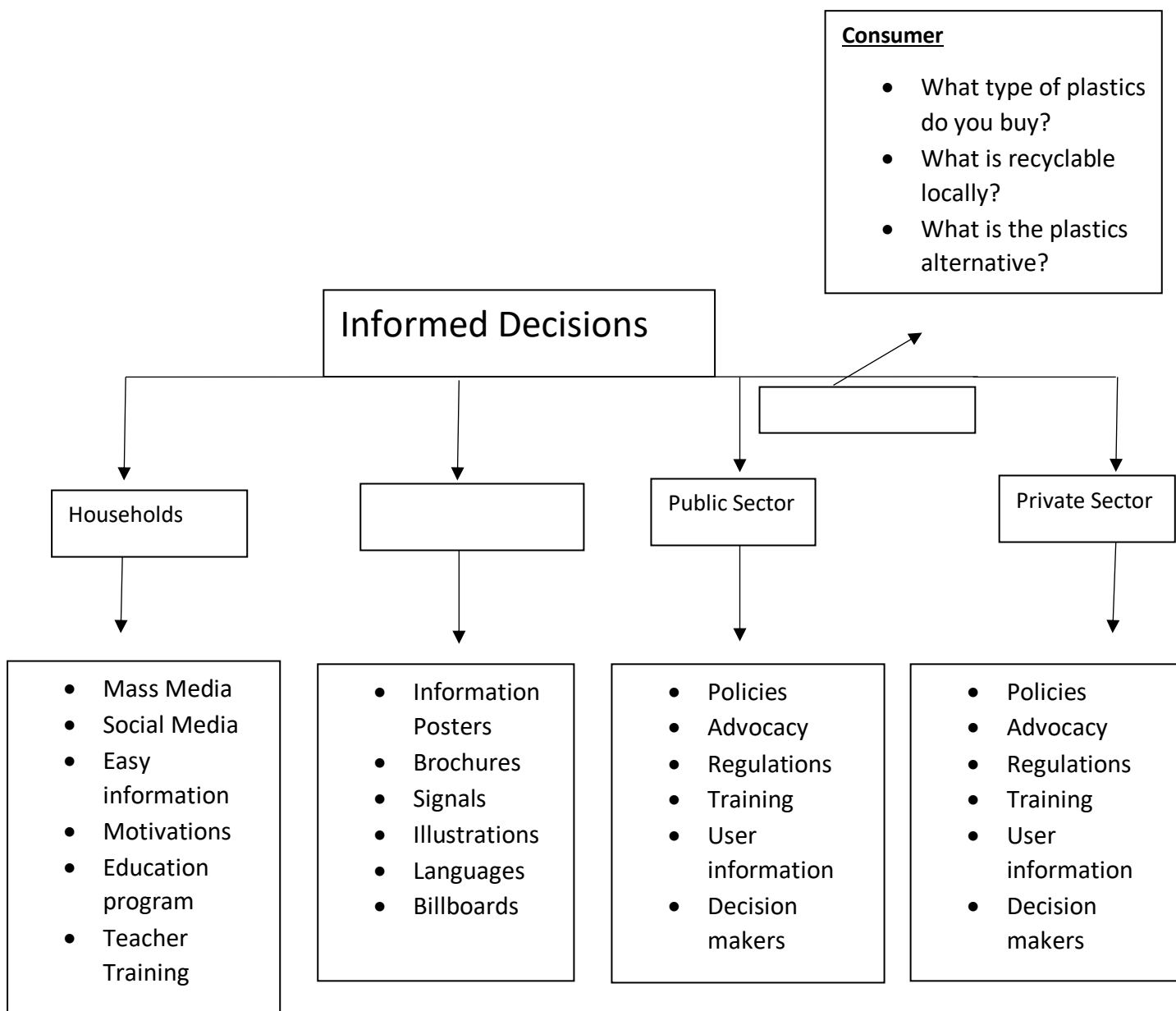


Diagram 3B: Action plan for consumers



Diagram 4: Action plan for retailers

Attendee List

Organisation		Name	Surname
Naidoo	Naidoo	Naidoo	Naidoo
Mozambique: ECO (Environment Childhood Organization) MOÇAMBIQUE	Project Coordinator	Alice	Crociani
Kenya: Aga Khan Primary school	Primary School Teacher	Dorcas	Muindi
Madagascar: Ministère de l'Education Nationale	Communication Manager and Project Manager of the extracurricular activity	Misaina	Razafitsiferana
Tanzania: Tanzania Institute of Education	Senior Curriculum Developer	Musa	Mwalutanile
Mauritius: Mauritius Institute of Education	Head: Science Education Department	Ravhee	Bholah
Seychelles	Teacher	Jude Brian	Bouzin
The Global Travel and Tourism Partnership South Africa	National Director	Elsabé	Engelbrecht
Department of Education, Nelson Mandela District	Subject Advisors/curriculum unit	Isaac	Metembo
Department of Education, Nelson Mandela District	Subject Advisors/curriculum unit	Dorelle	Isaacs
Department of Education, Nelson Mandela District	Subject Advisors/curriculum unit	Me	Sokutu
Department of Education, Nelson Mandela District	Subject Advisors/curriculum unit	Mervyn	Louis
Department of Education, Nelson Mandela District	Subject Advisors/curriculum unit	Charmelle	Swingly
Department of Education, Nelson Mandela District	Subject Advisors/curriculum unit	Dorelle	Tarantaal
Department of Education, Nelson Mandela District	Subject Advisors/curriculum unit	Jeremy	Sampson
Department of Education, Nelson Mandela District	Subject Advisors/curriculum unit	Adriaan	Lombard
Two Oceans Aquarium	Outreach Teacher	Anzio	Abels
Two Oceans Aquarium	School Group Coordinator	Wandiswa	Jonga
uShaka Sea World Education Centre	Formal Education Manager	Heidi	Kilian
Save Our Seas Foundation Shark Education Centre	Educator	Tom	Campbell
SANCCOB	Education Manager	Philipa	Wood
The Waste Takers	Managing Director	Mary	Phillips
Cefas-CLiP	Marine Litter Researcher	Bryony	Meakins

Cefas-CLiP	CLiP Communications Lead	Kyle	Briggs
The Waste Trade Company	Schools Project Coordinator	Emmy	Nxayeka
Zwartkops Conservancy	Educator	Wandisile	Lukwe
Fumisukoma Primary School	Educator	Siya	Ntsumpa
Sustainable Seas Trust	Head of Education	Nozi	Mbongwa
Sustainable Seas Trust	Educator	Karien	Bezuidenhout
Sustainable Seas Trust	AWA coordinator and researcher	Tara	Scheckle
Sustainable Seas Trust	Educator	Philippa	Lascelles
Sustainable Seas Trust	CEO	Tony	Ribbink
Sustainable Seas Trust	Communications and AYWN coordinator	Alexie	Kalenga
Sustainable Seas Trust	Communications: Events coordinator	Chumi	Lujabe
Sustainable Seas Trust	Communications: Social media	Courtenay	Webster
Sustainable Seas Trust	Executive Director	Stacey	Webb
Elukholweni Primary School	Teacher	Sinethemba	Mahlathi
W.B Tshume	Teacher	Liziwe	Kate
Empumalanga Primary School	Senior Primary teacher	Tabisa	Wababa
Empumalanga Primary school	Teacher	Nomalunga	Kwatsha
Ilinge Primary School	Principal	B.C	Sali
Laerskool Kabega Primary School	Deputy Principal	Corrie	Van Eck
Laerskool Kabega Primary School	Teacher & Head of Groenspoor eco-club	Adele	Botha
St Georges Preparatory	Teacher (Jemima Reilly Gr 2 Teacher)	Shelley	Hall
Sustainable Seas Trust	Intern	Palisa	Ntsala
Sustainable Seas Trust	Intern	Tanna	van Niekerk
Cefas-CLiP	Marine litter Data Analyst / CLiP data manager	Umberto	Binetti
Department of Education, Nelson Mandela District	Subject Advisors/curriculum unit	Mzimasi	Mhlebi