

WORLD ENVIRONMENT DAY SYMPOSIUM ORGANISED BY THE GREEN INSTITUTE

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EDUCATION PANEL SESSION

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DR. MIKKI-MICOMB-KOBZA: PLASTIC POLLUTION EDUCATION IN ACTION FIELD RESEARCH & SOLUTION

Dr. Mikki: Good afternoon, everyone. My name is Jack McGee be and I'm joining you from South Africa. Happy world environmental day. Today, we have discussed very insightful, topics pertaining to how to preserve our planet for the future generation. So today there are two panels, Victor speakers that will be joining me is Dr. McKee Macomb and, and Dr. Benjamin term please join me as we start the session.

Abraham: Hello Dr. McKee, Hello, thank you. It's nice to meet you. Hello. Nice to meet you too and everyone that's on the call and I don't know if we're going to wait for the second panelist and then I can introduce you then we can hit it up. Lovely blade background. Okay so I'm going to start off the session by introducing dr. McKee Macomb kabsa, is it fine? If I refer to you as Dr. McKee sure that's great. Okay, thank you so much so the topic that we're going to be discussing with dr. McKee's plastic pollution, education, and action field, research and solution. Just a background on Dr. McKee, she's an applied biologist with over 20 years' experience in researching endangered species in advancing real economy and ecosystem restoration. Their primary focus, research, focus is upon biology, the behavior of findings in movement of shark using novel methodologies. Dr. McKee uses a multi-stakeholder strategy to advance in science based conservation initiative across disciplines. She has lead and participated in 40 marine research expeditions is including the region of Darwin, Cape Town. Many as Hong Kong, Nova Scotia, bellies and eastern coast of the United States. Dr. McKee is the co-founder and executive director of the oceanfront Institute in Boulder based nonprofit dedicated to Marion research conservation and education. The Institute has researched thousands of students in local fundraising schools as well as 1 over 170,000 schools in Thirty five countries and 46 US states. The Institute has you to National recognition for establishing high-profile conservation project and providing compelling educational programs. Wow, this sounds incredible. I can't wait to learn from you and to hear from our other speaker. So if you are ready, I think you can take it away with your presentation,

Dr. Mikki: okay? That sounds great. Well, thank you so much, and happy world environment day. Thank you for having me here. My name is Dr. Mickey Macomb Cosa, I'm the director of Ocean First Institute. And I'm here today, to talk to you about plastic pollution, and a program that the Institute has started to really highlight the pervasive issue of micro Plastics and microfibers, next slide. Thank you. So, we are working with local schools in Colorado of all places, right in the Inland of the United States. And we're providing opportunities for students to be able to sample. Local rivers and streams in the water and in the sediment to look for micro Plastics and microfibers. So, just a little bit of background on how this all started next Slide, please.

So I'm in Colorado, as I mentioned. And so I saw the results of a study that really impacted me about 3 years ago. And so there was a researcher who worked in Rocky Mountain National Park and this researcher was interested in rain and was setting out all across the Rocky Mountains, rain gauges to collect rain that was falling to do studies on that. At and when he started processing his samples, he started to discover microfibers. And so this was a surprise to him and he put out a report of his findings in 80% of his samples he found microfibers and the headline was that it was literally raining plastic in the Rocky Mountains. So this caught my attention and I decided to try to see what I could find in my Local region in our watersheds. And so we started a program with lions High School which is local to me, where we took high school, students into our River, the St. Vrain River, and we collected water samples, and also sediment samples with students to see if we could find and detect

microfibers or micro plastics next slide. And so you can see here, we are right on the banks of River collecting sediments right at the water line to see if we can find micro plastics or microfibers next slide. And so that's exactly what students did. We went through a few different methodologies of collecting or getting the micro Plastics and microfibers out of the sediments. That was a little bit of a challenge. And so we created some novel equipment, to help us locate and get those micro Plastics in microfibers out of the sediments. But when we did, Students were able to quantify what they were finding in the samples and what we found was really surprising next slide. So our results over the last three years we've received funding to do micro Plastics and microfiber sampling in six, counties in Colorado, and out of our 226 samples, we're finding 10 Micro Plastics in water, on average and 22 in the sediments. This was really, really surprising to us to find this much and we only have one sample that we didn't find anything.

And so, It really is ubiquitous it is widespread and what's unique to us is that our Colorado watersheds. We are at the very top of the Colorado, Rocky Mountain, and the Continental Divide and so our water flows from right here in Colorado to the Pacific Ocean and then it also drains into the Gulf of Mexico. So we are uniquely positioned to have an impact with our Rivers, where they go and what they carry and We know that 80% of plastic pollution originates Inlet and so this is a really interesting place I believe to look at the issue of plastic and how we can really address it next slide please. So you know what has been exciting for us? Is that this three-year project has really grown and it has now allowed us to Branch out into our new location in the Florida Keys. And so, the vision we have now is to be able to Go from literally the Rockies to the reefs and to follow this path of micro Plastics and microfibers in areas Inland all the way to the ocean. And so, our new project that we've recently been funded for is to look for micro Plastics and microfibers and ocean water off of the Florida Keys. And this has been really exciting because we're able to; again, replicate our program into high schools there in the Florida Keys. Keys to bring students out onto the boat. So you can see that large net. That's one of our toes and what's exciting is that we're able to then analyze these samples. So, next slide, we were able to get a grant. Now to work with a lab in Florida, to do spectral analysis of our samples. And so this is really exciting we have what is called an FTIR which is infrared spectroscope. And what it does is we can We put our samples into this machine and it will tell us the actual composition of the Plastics and that allows us to do a little bit of sleuthing on where this plastic came from, what is the origin of it. And that's really helpful when we're trying to understand the sources of the plastic and how we can really work together with the community to try to remove these Plastics. And so this has been a very powerful tool that we've been able to utilize next slide. And then this is one of my favorite parts of our program. So we strive to really have our students to report out the data, and this has been critical for us to understand, spatially, in all the different counties in Colorado. What are we finding? Which rivers are more of a hotspot than others? And so, students report out in a scientific way, either through posters or oral talks what they found in their schools and in their local backyard drills. And this has been a powerful way for students to understand the value of science. How to do research, how to analyze data and then to report out what they find. And again, this has been a really powerful way for students to get engaged next slide and one of the best parts of the student Summits is that we have partnered with green products and green companies that provide the Means that we need to be widespread in throughout our communities. And so these are things like wash your sheets that replace traditional liquid detergents or toothpastes that don't have the casings that are disposed into landfills, very simple things that we put into the hands of our students and their families. So that when they go home on day one, they're actually making a difference and they're incorporating some of the very simple solutions into their everyday lives right out of the gate and that has proven to be a really empowering part of our programs. You know, when you think about the nature of plastic pollution and how much there is, it can become a bit of an overwhelming issue, but to be able to find Solutions and to put those Solutions into the hands of those that can make a difference. Has for us, been a really big game changer and something that we find is a very positive, a solution for for moving forward. So with that, I'll stop and take any questions. If anyone has any.

Abraham: Wow, thank you so much. Thank you for that insightful, presentation. I think it's very important, you looking and conserving the world and including students in that work. So, brilliant work and congratulations for all that you've done. So, I've got a question. So, under your leadership, the Ocean First Institute has done pretty well and more, especially in research, conservation and education. What are some of the innovative? Approaches or programs that you have implemented to educate students and also to raise awareness around plastic pollution and its environmental consequences. Maybe some of the land is new from other parts of the world. They can sort of replicate those in their respective environments.

Dr. Mikki: Yeah, sure. I mean I think you know, one of the you know, the biggest issue is just how ubiquitous all of this is and you know, we know that 80% of Said that goes into, the ocean comes from Inland sources and so for us, you know, to be able to have these educational programs and to have students understand that there are solutions that they can incorporate in their daily lives, has been a really big part of what we do. We also connect a lot of our River Work, Not only with plastic pollution, but we do a lot of restoration of animals. So we do a lot of native fish restoration projects. So, not only is it, what's in the water? And how we can, you know, try to stop getting plastic into the water but also having a healthy enough ocean to sustain native fish. So it's hand in hand, you know, not only are we trying to remove plastic but Ross trying to put back into the rivers, some of those important species that are Keystone and really important. So I would say, you know, for someone looking to incorporate a new project like this, you know, start off with doing some monitoring and then start building the capacity with your partner's. You know, we can't do this work alone. We have so many partners in our community that help us achieve these successes so it's been really great so you can thank you so much for that. Victim, a key eyewitness pendant is to do top. Damoah is ready for us. Welcome to Dr. Damoah.

DR. BENJAMIN DAMOAH:

Dr Benjamin: Hello. Yes, we can hear you.

Abraham: We can see you can hear you, but you can't see you,

Dr. Benjamin: and I'm wondering what's happening? Okay, can you see me? It's something coming. Nope.

Abraham: You can see but I can see you. I can see you. Now we still unable to see you, but I think you can start with your presentation on the meters or introduce you, but I didn't, I didn't get you the last time. Sorry about that. I'm so going to happen. So we are joined for our next session by Dr. Benjamin demo. And the topic that we're going to be discussing is determinant of effective, Environmental Education policy in South Africans. Do the dance. If biography about Dr. Benjamin, he's an environmental and research fellow in the faculty of Education in Walter sisulu University. But avoid next decade in South Africa, his area of expertise is Environmental Education and he holds a teachers professional certificate and in advanced certificates, in education and Bachelor of Education with Corners in Environmental Education and is also got a master's in Environmental Education and a doctor of philosophy in Environmental Education.

Dr. Abraham: Thank you. I want to wish everyone a happy with environment has day and I'm very happy to join this communication this afternoon. I'm with much of your time this evening will be talking about the determinants of effective Environmental, Education policy in South African school. So please, I'll be very glad if you could control the slides for me.

Dr. Benjamin: The next slide, we all know that the word is being confronted with many environmental issues today, and we have seen that a mental issues abdomen, eat a global conversation. And this has made world leaders to look at alternative ways of incorporating environmental content to the school curriculum. Now on the global perspective in response to the 1987 to visit declaration coupled with agenda. Twenty one which was a summit that was held in 1992 only in many countries around the globe. Now and have enacted and attempted education, policies. Aim at integrating environmental content into the school. Curriculum notably among these countries is the new Air. New Zealand, Australia, United Kingdom, the USA, Brazil, China, Zimbabwe Tanzania, and South Africa. They are all initiative policies to adopt PE. As a component of the school. Curriculum, the next slide.

So when we talk about safe, my study situated in South Africa contest, I will look at how South Africa has responded to. The globe is call towards integration of a metal content to the school. Curriculum in 1990, white paper was issued and this white paper give a clear and firm Direction on how and where metal content to be incorporated into the school curriculum from there. We had what you call, a Vermonter education policy initiative, which we call it EEPI it was established in 1992 to facilitate the collection and development of EU policy in schools. And then in 1996, we all know. When there was a transition from the apartheid government, the new government

We had an initial education policy from listen to develop. A new curriculum where by PE content would be granted into the school curriculum. So right through, we don't waste much of the time. Since time is already spent from curriculum 2005. What you call the cabs curriculum. Now we have seen that environmental contents

are being incorporated into all disciplines. So our study here. What seek to achieve? The objective of the people is to analyze how to ascertain the very ingredients that support implementation of effective environmental education policy other things we lived behind. This is a purely empirical study. We're dealing with Miss Method, pragmatist. Paradigm translation, the sample size total is about 185. Let's go to the next slide, so that we always much of our time. Now, these are the results and the discussion of the study the investigation found that PE objective statement in the Caps document for the sake of those who are not in South Africa. Will talk about curves is a curriculum assessment policy statement that is the current curriculum document as an African. Basic education system is using now, we call their caps documents. That's one thing that we need to establish year that I kept document that the main objective. That's Incorporated GTE into the capital of these two broads and lack of everything. It was discovered that the EE objective, which drives the policy design was simply listed as part of curriculum general objectives. There were no exclusive objectives connected with the implantation of the EE policy.

School with a strong interest in EE have your local policy statement that direct their environment efforts individual schools including recycles Garden, where transformation programs to help Implement EE policy. It was discovered that aside from the primary aims and objectives of the curriculum. The Cavs that comment was very silent when it comes to the policy or EE policy implementation. What are we saying? The current curriculum that the South African government is using this encourages every teacher to incorporate environmental content into their disciplines. But what we discovered is that there's nothing that is said in the policy document that directs what teachers must do what that direct how teachers should incorporate environmental content into their study. So these are, these are some of the funding that we discovered the next life. There are slight about institutional and societal contest. The study discovered that the institutional structure of some schools, encourage the adoption of EE policy. It was observed that some schools have the code of conduct that guy's EU policy implementation. It was noticed that a lot of schools in the classrooms. We're not establishing a favorable environment to accommodate EE policies. This one you are saying in South Africa , we have what is called mordisee school, we have those schools in the township to do schools in that can see, we have the cuenta want of the quantify schools, what we notice is that most of the schools in the Township's, they do not have initiative that support the implementation of a environmental education policy and that is not the case. When you go to search, you say the White school, the established schools, they have firm policies. They have well tested policies that drive environmental education policies in their various groups. Then the next one is the implementation strategy. As per the survey, the furnace. What we saw is that most of the teachers do not even understand the objectives of EU policy, as a client in the curriculum; this has impacted how the policy is applied in various schools. According to the study's findings, the Caps document does not provide an implementation strategy that includes the mandatory policy practitioners in the curriculum. This directly influence, how EE was adopted in classrooms, the study found that characteristics that assist the implementation of educational policies were scarcely present in the school system. This has harmed how EE policy is implemented in schools. And most teachers and principals were unfamiliar with policy design, objectives and implementation strategy of every environmental education, the next slide, please. Next slide, please.

Dr. Benjamin: I have seen it. I've seen the conclusion side. Okay. Is that not a last one? Yes. Yes. Let me just wrap it up quickly conclusion. There are four unavoidable variables that we need to know. When it comes to implementation of policies. We are going to call the policy design stakeholder engagement, the institutional and social context, and the implementation strategy established in this study.

The curricular studies for EE are too broad and unclear. I believe that you are from South Africa are so you'll be familiar with some of the things that I am saying the research firm that the element that facilitates. That facilitate, the implementation of educational policies were barely existent in the school system, and this has affected, how EE policy is implemented in most schools. Most teachers, our principals were dispassionately unfamiliar with the policy design objectives and strategies to support EE implementation the determinants above, collaborated to make policy implementation possible at the school level. Although the concept of EE as integrated component novel and excellent curriculum developers to realign the curriculum aims and objectives. The curriculum developers are obliged to re-examine the general aim of the national curriculum on. This is what is written in the Caps document and I want us to look at It. It's coated it says; Human rights inclusivity environmental and social justice infusing, the principles and practice of Social and environmental justice human rights are defined in the constitution of the Republic of South Africa. This one is said about environmental education in the school curriculum, this is the only thing and nothing more.

Abraham: Hello, my name is recap, please. Please wrap up the terminal window so I can bring them. And then we have a discussion should discuss with you.

Dr. Benjamin: The main rhetoric, the broad goal associated with Environmental Education, should be narrowed to specifics and Clarity. Environmental concerns are Global and National pandemics, and should be treated with the utmost curriculum attention with frantic principles political will To be embedded in the curriculum, not just a drive through the knee-jerk approach that we have witnessed over the past years to the Cavs document. Thank you so much for your time.

Abraham: Thank you so much, dr. Benjamin demo. And let's welcome our other speakers and then we can have a short discussion. But a few questions.

Hello Peter Kiladejo. So I'm joined by nine third speakers and his name is Peter. Peter candidate. Joe intertwines the concept of realism and surreal surrealism to create works that inspired that is inspired by real-life events and fictional ideas.

Peter uses his art to challenge Africa and raise their authenticity and document African beliefs and cultural practices. In 2008 Peter received a national diploma degree from Yaba College of Technology Nigeria. And in 2012, he received a Bachelor's of Art and masters of Fine Arts from Obafemi Awolowo University. Welcome Peter and we're looking forward to hearing from you.

PETER KILADEJO: MAN AND NATURE

Peter: Hello. Good afternoon. Thank you so much. Thank you very much. I'm going to be presenting a discuss on man and nature from the artistic perspective. Because as an artist and creative.

You know, I see all these from the creative angle and then bow before I go on to show some of the things I've done in my creative exploration now like to briefly talk about man and nature. The first slide, Man is a natural being that exists and survives around nature of all over the world, survival of months, solely depends on this ability to inhale oxygen and exhale carbon dioxide. The natural environment is relatively safe, until pollution through wastes, smoke emissions, chemical wastes and other harmful substances found its way around the environment. The environment needs to be conducive, save and liter free to ensure safety and quality of life. The natural environment of man plays a major role in the survival; a clean and green environment can help sustain good health and quality of life. Plants and trees are essential for pure unpolluted oxygen which is a key factor for survival of humans. Trees are quite effective in reducing environmental pollutions by absorbing unsafe gases that would have been absorbed by man if there were not plant or trees around.

A green environment from an artistic perspective. Two years ago, I started a body of work teamed to man and nature and the project grew to become a series that I'm currently working on. The relationship between man and nature is quite unique because man cannot exist without nature and I'm talking about nature and pollution of the environment in sometimes it like the nature of man to not be very conscious of how they take care of their environment or how deliberate about how they do things, you know. So in my own, artistic adventures have seen that, some people are quite carefree about how they treat waste and liter, for instance, when I was doing my master's program projects I had to do a project that you know focus on using waste. it's a way of recycling waste to ensure that instead of it being you know, littering all environment could be put into use and the creative something more creative than could, you know, pre-proposes sort of to make meaning. I have created a painting that depicts the interplay of forms figures and nature. Green leaves visibly captured in my paintings portrait growth, nature strength youthfulness vibrancy agriculture and good health. From an artistic point of view the color green is quite significant. We are talking about a green economy.

For me I see green as quite powerful and symbolic because some of my themes you know, looking at man and nature from the first slide from the first picture, I was trying to talk about the interplay of Nature and man, as a being. we cannot dissociate ourselves from the importance of nature. So in this piece, for instance, the one I titled black black to oil on canvas, you know, it talks about how humans as natural beings can interrupt with nature and if nature is unpolluted, if the Green environment is left natural, there's so much benefit for instance, plants, and trees are quite some essential to the production of oxygen. And you take care of them very well, we can be assured of pure oxygen and also protect us from inhaling in pollutant carbon dioxide. I mean, polluted oxygen, you know? So here's what deliberate about how we treat our environment. We can, you know, be assured be rest assured of good health aside from that they also provide us with food, you know, the green vegetation, you know, agriculture will talk about agriculture we talk of, you know, what's the is what the

vegetation does for us as humans? If you look at the second picture, you also talk about modern nature in this particular things. I was inspired to create this piece to capture the essence of water nature. For instance, if you look at this piece you see a young woman giving out you know there's this apple just from modern nature herself then you can see the bird eating the apple and it could be related to how we as humans take from nature. The blind folding indicates that the figure in this painting is not really conscious or unbothered about who is taken from her or rather she's a giver. What that illustrates is that modern nature is a giver but if we tend to eat, if we water, it will take care of it, you know guide from any sort of pollution or interference, we are the ones that will in turn enjoy the fruits thereof, you know? So whether the number of the birds from humans we tend to enjoy modern nature. Also the next one talks about the relationship between man and nature. And how if you look at, for instance, the house because the stem of the Mist, you know, sign the answers together shows that there's a cordial relationship between man and nature, and it is important for man to nurture. You know, what is already abundant to us rather than abusive and pollutes it so quickly because of some lemon, go to the series that talks about Limit series, some time ago, I have to go larger community in on those things you know for some sort of research and work with. So my friend of mine was more of an artistic endeavor.

Abraham: I mean, I like on apologies for that. But thank you so much for the lovely and insightful presentations. I think my key takeaway from today is that the presentations have just made me realize the importance of Education, using our skills such as aren't communicating their message that we need to take care of our own planet. And also, to practice, to practice being the active participants in their people, and to participate. Pants in preserving the end that we live in. So there is a comment, a question that's in the that one of our participants is asked, so it says how can how can school based Environmental Education? Promotes student participation participation participation in policy and decision-making on climate change and other environmental issues.

Peter: So any can can can take it to tell me key or pita as if it belonged to the dominion over, correct? He stands, no striations. True signpost, graphic designs and textures around the campus, but also ensure that people cannot because even outside the campus environment people can read. So when there are signposts, that originally dummy would direct people and ensure that, you know, the instructed on what to do, how to properly be a la, camisa the environment, you know, people are guided and also true paintings like this. We are consciously reminded of the importance of, you know, No radio and cannot do with our relationship with nature and how conscious enough to treat it. Like, you know, it is very important because, of course, it is very important. We need to be calibrated and dual everything around us.

Abraham: Thank you so much, Peter talk to Mickey.

Dr. Mickee: Yeah, like I think one of the exciting opportunities is that students that are in the programs that we run, they become ambassadors in their schools to talk to other students about some of the things that they're doing and I mentioned a lot. Lot of the green initiatives and projects and products. So, putting those things into again, your everyday life, trying to reduce your plastic footprint, very real solutions on a individual basis. I think is what we see traction with and we see that going into the schools, you know, we see them implementing different energy issues with, you know, the, the schools and the administration trying Get recycling, programs, composting, all kinds of different things have come out of the environmental programs that are in our schools. So it really is fantastic. When the students, take the reins and and run with it, and really try to make some differences. And we're always, I think I'm in awe of the creativity that they bring to it. So I think it's great.

Abraham: Thank you so much. Tim Timmy could just a follow-up one day when the field of research methodologies that are applied. So the question,

Dr. Mikki: Yeah, you know, that's a really great question and I think our goal we I just was explaining how we've expanded our Research into the Florida Keys. We received a grant to not only look for plastic pollution in the environment but also to try to find Solutions with our local community in the way that we utilize our, our products and waste. So going to restaurants and businesses Business owners and talking to them about some of the solutions that are there for them as a business, to really reduce their plastic consumption and reduce their plastic for like takeout boxes, food, waste, things like that, have been really instrumental in this new phase of our program. So really trying to get students talking to community leaders and businesses is the next big step that we see on the horizon. And we're really excited too. Pilot this and kind of see where it goes.

Abraham: Okay, thank you so much for this some parting words. So we have a campaign in the breeding Institute, it's called officially green. What would this officially grade mean to you? So Peter you can go and then continuity to close off.

Peter: Come again, please.

Abraham: I beg your pardon. Come again soon. Okay, so we have a campaign that you're running with at the green Institute and it's called officially grain. So we wanted to find out what is officially great mean to you.

Peter: Oh yes, thank you very much. Officially green is to me as an abscess is a reminder of the need to keep a safe clean environment. That is pollution free. That is green because I like I said alien, bring is quite symbolic. For me as an artist, you know, when I think of call of grainy talks about nature and talks about vibrancy talks about useful, as it's also about life, the essence of life, it talks about purity, you know, it talks about agricultural, you know, immediately, if you will of things that keeps us as human beings. Good, you know so popular is a reminder for me to keep the environment clean and keep being healthy. Basically, thank you so much for them to come again. Yeah, I would just like to say that, you know, for me, I've spent my life trying to, you know, work to share the responsibility and the opportunity to, you know, really fight for the environment and for, you know, animals on our planet that have every right to survive just as we do. So for that, I am officially green.

Abraham: Wow, thank you so much. Rebecca laughing presentations and the Laughing inside, just to close off. All nine side, there's a quote that I like the taste. We do not inherit the Earth from our ancestors. We borrow it from our children and therefore this means we need to leave the Earth in a very brilliant place. Then we have found it. Thank you so much and looking forward to engage in further. Cheers. Bye-bye.