

# WORKSHOP REPORT



## ADEA Workshop on Education for Sustainable Development



2012 Triennial Follow-up: Education for Sustainable Development (ESD), Technical and Vocational Skills, Technology and Scientific Skills, Gender Equ. of Sk. & ESD Integration Strategies, Research, Curricula Reform, Training, International Follow-up and Evaluation of ESD.

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**November 26-28, 2012**

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## Acronyms

ABS	Access Benefit Sharing
ADEA	Association for the Development of Education in Africa
ARPEGE	Programme Régional à la Promotion d'une Education pour la Gestion de l'Environnement
CCESD	Climate Change and Educational Sustainable Development
DESD	Decade of Education for Sustainable Development
ECCAS	Central African States Community
ECSL	Education and Communication for Sustainable Lifestyles
EE	Environmental Education
EFA	Education For All
ESD	Education for Sustainable Development
<b>ESCA</b>	
GDP	Gross Domestic Product
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GSM	Global System for Mobile Communications
FAWE	Federation for African Women's Education
FDA	Food and Drugs Association
ICT	Information and Communication Technologies
IOC	Indian Ocean Commission
<b>MESA</b>	
MDG	Millennium Development Goals
M&E	Monitoring and Evaluation
NATCOM	National Commission for UNESCO
RCE	Regional Centres of Excellence
SADC	Southern Africa Development Community
SPES	Société pour la Promotion des Entreprises Spécialisées
STEM	Science, Technology and Mathematics
UNISA	University of South Africa
UNEP	United Nations Environment Program



A workshop ....



... .. on educating for sustained development

## Executive Summary

It is generally acknowledged that Africa is extremely rich in environmental resources. These extend from bio-diversity and medicinal plants to include an equally rich indigenous knowledge, cultural heritage and strong sense of community. Addressing environment and sustainability issues that threaten the future well-being of African people and environments is a critical development concern. Discussions among the educational partners during the ADEA Triennale 2012 showed that there was a widely recognized need for a paradigm change and the introduction of innovative teaching measures, to address the increasingly preoccupying depleting natural resources. The change that is globally identified as important is driven by a recognition that development models are not sustainable and have led to the current depletion of our environmental resources and bio-diversity. Depleting natural resources are reportedly an additional important cause of socio-economic crises. In Africa, environmental challenges are aggravated by climate change and population growth. The need for food and shelter for everybody but especially for environmental refugees leads to a further degradation of the environment in a continuously vicious cycle. In some situations this is further compounded by poverty.

As much as the problem has been discussed and challenges identified, solutions have also been proposed. Most scholars involved in Environmental Education argue that the non-responsive mainstream educational system should be re-engineered to address environmental concerns. Within ADEA, Agenda 21 ([http://www.un.org/esa/dsd/agenda21/res\\_agenda21\\_00.shtml](http://www.un.org/esa/dsd/agenda21/res_agenda21_00.shtml)) was especially inspiring with regard to developing an innovative agenda that could be responsive. **Agenda 21** (1992) is a non-binding, voluntarily implemented action plan of the United Nations with regard to Sustainable Development. It is an action agenda for the UN, other multilateral organizations, and individual governments around the world that can be executed at local, national, and global levels which stipulated among other things that governments should *“promote proven educational methods and the development of innovative teaching methods for educational settings”*.

Of relevance to the mandate of ADEA, is Chapter 36 of the Agenda 21 that recognises the need for an educational approach that is lifelong, lifewide, inclusive of all age groups, ages, approaches and technologies: “Education, raising of public awareness and training are linked to virtually all areas in Agenda 21, and even more closely to the ones on meeting basic needs, capacity-building, data and information, science, and the role of major groups”.

This clause clearly shows that Agenda 21 had already provided directions with regard to the much needed innovative pedagogy, the answer required by all educational practitioners help make development initiatives more sustainable. These were enshrined in Agenda 21 as follows:

- Reorienting education towards sustainable development;
- Increasing public awareness; and
- Promoting training.

Within ADEA, we are looking anew at a systemic approach that will be all encompassing and include all educational levels and pathways. We are looking at that which relates to mainstream educational systems, general education, professional education, TVET and even indigenous

knowledge. We are concerned with formal, non-formal and informal pathways. We are considering all channels for interaction, face-to-face or mediated by the numerous technologies and media to which we have access. Within ADEA we believe that Education for Sustainable Development (ESD) as discussed within Agenda 21 and taken up in other Agendas like the EFA and MDGs, should be the backbone that will hold together the educational system; should be systemic, transversal and inter-sectoral; and should permit each individual to reflect on his/her role within varying spheres of development initiatives.

Towards furthering its mandate, this view influenced the ADEA decision to provide a platform that could enable more reflection on the issue of ESD from a series of partners that were identified on the basis of their given spheres of activity and intervention. Thus ESD experts, representatives from blocs of countries, Ministries concerned with the Environment, Health and Education, related cadres, NGOs, Government organizations, Teachers (at all levels), Training and Educational Institutions, the Media, Policy-Makers were all appropriate stakeholders. Leading on from recommendations made at the ADEA Triennale 2012 that the concept of sustainable development "*has ...expanded to encompass the social and economic infrastructure that determines a society's capacity to maintain itself in a rapidly changing global context*"<sup>1</sup>, and to explore possibilities related to the setting up of an Inter-Country Quality Node, on 26-28 November 2012, ADEA, in collaboration with BMZ/GIZ, the Center for Phytotherapy Research and Development (CEPHYR) held an International workshop on ESD in Mauritius.

It brought together representatives of ministries of education, environment and universities from Benin, Burundi, Burkina Faso, Cameroon, Kenya, Mauritius, Lesotho, South Africa as well as officers from SADC, the Indian Ocean Commission and an Economic Community of Central African States (ECCAS) Youth network. The rationale for organizing the workshop stemmed from the follow-up framework of the ADEA 2012 Triennale on *Promoting critical knowledge, skills and qualifications for sustainable development in Africa: how to design and implement an effective response by education and training systems?* The key objective was to provide a space that would bring together the identified multi-sectoral stakeholders for reflection towards reaching a common understanding of the implications of the concept of Education for Sustainable for the education and training systems in Africa. The discussions focused on the importance of mainstreaming and integrating principles of sustainable development into educational activities across all levels and pathways of learning and training.

Participants renewed their understanding of education for sustainable development (ESD) in the light of shared knowledge and country experiences. The first day of the conference was devoted to a discussion on ESD and its cross-sectoral implications for development as well as suggested actions. This was followed by various actors and representatives showcasing activities in several sectors. On site visits were carried out to an NGO and to an endangered beach in the North of the Island respectively. The purpose of the visit to the NGO was to observe their multi-literacy programme that involved transmitting skills ranging from reading, writing to digital literacy. The purpose of the visit to the endangered beach was to demonstrate to participants, the damaging effects of coastal pollution and the extent of government efforts to preserve this environment, and prevent landslides in a timely manner. The third day included discussions on the relationships between policy-making, education, sustainable development, research, employment, technology, industry and the way forward.

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<sup>1</sup> Paul Cappon. (2009). <http://www.ccl-cca.ca/ccl/Newsroom/Speeches/20090316PresentationAmbassadorToFrance.html>

The outcomes of this Workshop matched initial expectations of the ADEA: the setting up of a platform for effective reflection, the sharing of experiences, best practices and instructional materials. As one of the Triennale outcomes, it had been agreed that ADEA needed to facilitate regular inter-country dialogue and partnership so as to ensure the strengthening of technical and institutional capacities of countries through a variety of strategies including enhancing the networking of institutions and individuals with ESD expertise and experience of innovative practices. Towards that end, one of the first outputs of the Workshop was the planned Memorandum of Understanding between the ADEA and the Indian Ocean Commission. This could well be the first stepping stone towards the setting up of a proposed Inter-Country Quality Node on Education for Sustainable Development (ICQN-ESD) which would give concrete expression to the reflections and enable ESD to emerge as a backbone for wide-ranging educational interventions.

## 1.0 Introduction

### **Approaches to ESD across the education sector and its implications for developing new competencies and skills: Directions, challenges, solutions...**

Taking as starting point sustainable development (SD) as outlined in the ADEA Triennale 2012 Concept Note, and as described in ADEA-funded studies (Mauritius and Burkina Faso) this document provides the rationale for the setting up of a platform for reflection and discussion leading to the possible setting the proposed Inter-Country Quality Node on Education for Sustainable Development (ICQN-ESD). It draws on discussions held post the Triennale 2012 regarding the nature of core skills and competencies necessary within the African context and outlines a range of issues and challenges in this area that are faced by policy-makers, practitioners, educational institutions, industry, students and people at large alike. It also delineates how the ADEA intends to take matters further by studying a systemic approach towards the desirable ESD-informed paradigm shift that had been endorsed by all the participants of the Triennale 2012.

The participants at the Triennale focused on a multilateral and multi-sectoral approach to education and training in Africa that truly takes account of stakeholder experience such as private sector and youth. These youth would eventually grow into a critical mass of citizens who are not just informed and trained, but who are above all capable of using their achievements to bring about the economic, social, cultural and political changes required for sustainable development. Such citizens should contribute to the innovative and contextualised development of knowledge relevant for economic growth.

Towards developing strategies for the implementation of the resolutions reached after the Triennale 2012, ADEA provided a platform to deepen dialogue, crystalize resolutions, achieve sustainable and demonstrable results as well as to have consensus on approaches that would promote the ADEA-identified paradigm shift towards effective sustainable development.

To find strategies towards potential solutions, ADEA was inspired anew by the Agenda 21. Agenda 21(1992) discusses how governments should “*promote proven educational methods and the development of innovative teaching methods for educational settings*”. It recommends that the required educational approach should be lifelong, life-wide, inclusive of all age groups, approaches and technologies. The above provided the foundation on which discussions during the Workshop held in Flic en Flac, Mauritius from the 26<sup>th</sup> to 28<sup>th</sup> November 2012 were held and conclusions reached.

### **1.1 New priorities**

The concerns of the platform reflected global and essentially African preoccupations but also set out new priorities. Several ministers who participated in the post-Triennale debates elaborated upon ESD strategies already formulated in their countries and agreed on the need to have a platform that would favor structured and reliable discussions towards supporting further country engagement in approaches promoting sustainable development. The new priorities were subdivided as follows:

a. Group1: ESD, Teaching, Learning, Literacies and Capacity Building: Strategies and Mechanisms to promote critical core competencies. The focus here was on developing strategies

and mechanisms to *integrate* ESD into primary to tertiary education and beyond. Essential activities in this regard were discussions on curriculum reorientation, capacity building, especially for policy makers and teachers. A subsidiary area that required focus was on employing literacies as an effective approach to ESD with special consideration for non-formal and informal educational pathways: Asset-Based Community Development towards Poverty-reduction and Inter-generational equity, Environmental Literacy, Health Literacy, Parental Literacy, Multiple or Accelerated Literacies.

b. Group 2: ESD and Higher Education, Research and Development for Employment and Sustainable Development. The focus of this group was on ESD Research, Development and the Economy, Food insecurity, Indigenous Medicines, and Access-Benefit Sharing.

The recent Rio+20 Conference has sharpened focus on higher education as a crucial driver of ESD. At the converging point of research, innovation and development, higher education is pivotal in promoting social change processes with an emphasis on educational quality and curriculum transformation, educational responses to poverty, risk and vulnerability as well as critical research methodologies and training decision-makers to empower them in their role towards creating new paradigms that will foster sustainable societies.

## **1.2 The Workshop**

The Workshop on Education for Sustainable Development was opened by senior representatives of ADEA, GIZ and the Indian Ocean Commission. The strategic importance of the event in catalysing inter-country dialogue and action on integrating sustainable development as the new paradigm shift for education and training was emphasized.

### **1.4.1 Association for the Development of Education in Africa (ADEA)**

ADEA's Executive Secretary, Dr Byll-Cataria, welcomed delegates to this important meeting. He placed the meeting in the framework of the ADEA Triennale. The location of the conference in Mauritius was deliberate since the latter was promoting itself as a sustainable island with some significant achievements in this regard. This workshop aimed to develop a shared vision and strategies that could be undertaken on the continent of Africa, the continent of the future.

### **1.4.2 Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)**

The GIZ representative, Ms Katherine Kohlbecher welcomed participants to this conference. She noted that the GIZ as an organisation is looking to pull together ecological, economic and social sectors to address the issue of education for sustainable development. They are interested in exploring how collaboration can shape the future of our children's grandchildren.

### **1.4.3 Indian Ocean Commission (IOC)**

Mr Jean Claude de L'Estrac, gave thanks for involving the Commission in this important workshop. The IOC representing five islands in the Indian Ocean, Comoros, Madagascar, Mauritius, Reunion and Seychelles, is specifically focused on safeguarding environment of the region. He noted that resources are often wasted on short-term interests, partly because people who are poor tend to ignore the need to preserve the long term because they are insecure and focused on survival. This is a major challenge in sustainable development initiatives. The speaker noted that to be effective multiple entrance points are required: from top-down, through policies, but also bottom-up through individual behaviour to create a virtuous circle. The IOC experience provided additional support to the ADEA initiative by bringing together island-states within the Indian Ocean region and sharing of

knowledge on the ground. The IOC aims at transforming critical research and data into clear and simple strategies, especially involving the use of new technologies of communication and information, such as the cell phone. The IOC with 30 years' experience, invited ADEA to join forces to promote collaboration between the two organizations on ESD related issues.

### 1.3 Objectives and Expected Outcomes

ADEA's Executive Secretary, Dr. Byll Cataria informed those present about historical background to the workshop. He noted that as a result of the ADEA Triennale held in Ouagadougou earlier this year, an opportunity was created through the heads of state to follow up on Education for Sustainable Development challenges. The Minister of Education, in Burkina Faso made a presentation to Heads of state earlier this year and pointed out that the Burkina Faso Head of State had agreed to mobilise three heads to present a document of reference on ESD to all heads of state at the Summit in Addis, January 2013. This could serve as impetus to Ministers of Education and Training to be more responsible to follow up on related issues.

The present Workshop conference was critical in exploring challenges and implications – in particular in terms of national policies, strategies and pedagogic approaches. It explored the levers of change and the models of practice that could be adopted. Thus, an important aim of this workshop was to understand the implications of education for sustainable development with regard to a range of participants, educational levels and pathways, especially NFE, rural populations, indigenous knowledge; teachers, learning materials, pedagogic approaches and the relationship and partnerships between education and industry.

The objectives and the outcomes of the conference were presented by ADEA's Chief Education Specialist, Dr Hamidou Boukary. He noted the importance of the follow-up of this conference, in terms of the future pillars for action and the mechanisms for regional collaboration and cooperation on ESD issues. As a follow-up to discussions held during the Triennale, it was important to create a space whereby the activities hereunder could be undertaken in support of the ADEA objectives:

- a. Advocate for education for sustainable development across levels including pre-primary to post-tertiary, and pathways including the formal, informal and non-formal education based on a critical pedagogy approach.
- b. Enable formulation, strengthening and implementation of ESD policies and strategies
- c. Ensure the implementation, monitoring, evaluation, impact assessment and recalibration of ESD programs.
- d. Engage in capacity building, especially focusing on policy makers as well as research in country-defined priority areas.
- e. Develop strategic linkages across disciplines, regions, sectors with a range of stakeholders.
- f. Encourage evidence-based policy development as well as strategic interventions supporting sustainable development.
- g. Use media and ICTs extensively to develop future scenarios to promote individual conscientization and to achieve ESD objectives

Essentially, future directions will rest on sharing of best practices, experiences, linkages and networks.

## 2.0 Key note Addresses

### 2.1 Strategic Issues for Increasing Women's participation in Science and Technology for Sustainable Development

Prof Ameena Gurib-Fakim, Director of CEPHYR, Researcher and Former pro-VC of University of Mauritius, and co-organiser of the Workshop presented a paper on "Strategic Issues for Increasing Women's participation in Science and Technology for Sustainable Development".

She noted the following constraints facing sustainable development that are specific to Africa:

- Limited human resources, weak institutions which drive vulnerability; natural fragility with most countries highly dependent on natural resources.
- Africa has the world's fastest growing population, 60 per cent of which are youth.
- Economically, Africa is on the ascendant and 50 per cent of its population will be living in urban areas by 2050.
- Africa is conspicuous by its lack of presence in knowledge production but it is also a significant repository of traditional knowledge, especially among women.
- There is a significantly low presence of women in various fields of expertise, what Amartya Sen calls "the missing millions". The fields of chemistry and science typically show a gender gap. Despite there being famous women scientists there are no real opportunities for women in this field.

Dr Gurib-Fakim argued that the gender dimension is critical to dealing with the challenge of sustainable development. She noted that although the MDG2 and three goals focus on ensuring that all girls and boys finish schooling they do not touch on the presence of women in higher education which is very low.

She touched on the issue of leadership arguing as does Nyere and Atal Vaypayee, former Prime Minister of India do, that it matters particularly in our context, and that developing countries have made significant progress with good leadership. She noted that despite the fast growing population Africa needs to close the knowledge gap. Although there has been a dramatic change in the past five years in terms of global publishing world wide, Africa is still conspicuous by its absence.

She questioned the role of women in addressing this. Her recommendations were as follows:

- Improve girls self confidence in maths and science subjects at school level.
- Change teacher attitudes towards girls achieving in these subjects
- Make changes in the curricula that enhance the role of girls in these subjects

More specifically,

- Increase efforts to address the gender pay gap by appropriate policies.
- Build a critical mass of skilled people through inquiry-based science pedagogic approach; develop oral and writing skills, etc.
- Tertiary education, missed in MDGs, must ensure a more equitable female presence
- Increase disaggregated data on gender for policy makers
- Increase gender equity in STEM

Dr Gurib Fakim noted that only 33 per cent of researchers are women and 48 per cent of farmers are female. She proposed that there is a need for greater collaboration in science. Her recommendation

is to promote collaboration to link with outstanding scientists, link with the latest knowledge, seek cross fertilization of ideas, and promote the foundation of scientific inquiry. It creates a multiplier effect. She suggests that we need to find solutions that are economically viable, socially relevant.

On the subject of science and Indigenous Knowledge, she noted that African women are often the repositories of this knowledge. It is critical that ESD strategies need to address the interaction with other knowledge systems.

Her proposed way forward included the following strategies:

- Increase collaboration among scientific communities, a good current example is South Africa and Egypt
- Marshal ICT and the social media to support ESD. She noted that Facebook is the third largest virtual country with 750 million members. More than half of Africa's population lives in range of a GSM signal which is significantly more than was the case 10 years ago.

She concluded by stating that Africans need to become producers of knowledge, activists in generating ideas, and women need to become drivers of change.

## 2.2 Approaches to ESD across the education sector and its implications for developing new competencies and skills- directions, challenges, solutions...

Dr Sushita Gokool-Ramdoe, a Mauritian ESD expert and previous Advisor to the Minister of Environment and National Development Unit on Environmental Education and Policy Matters (2008-2010), noted that the issue of sustainability began as a focus on environmental issues but now covers social and economic framework within which societies operate. She indicated there is considerable conceptual confusion surrounding the concept, and retained the Brundtland (1987) definition as the most appropriate operational definition that is “**development that meets the needs of the present without compromising the future**”. Within this discourse, environment is all encompassing as it includes all contexts and cultures. To fully realise the importance of sustainable development, it is important to recognise the interconnectedness of environments and spheres of influence in which an individual operates. These spheres of influence beam out from the individual at its centre through the local and regional to the global. She highlighted that from a systemic approach, Education for Sustainable development should be seen as the backbone of all educational systems, **inclusively** holding together all its sectors, sub-sectors, approaches, pathways and stakeholders together so that the collective aim of a recognised paradigm can be achieved in an effective and sustained manner.

She noted that core common education competences were discussed at length at the Triennale and remain a critical dimension of ESD. She typified the competencies as being:

- Cognitive: pertains to the processing of information through instructional strategies to increase or broaden knowledge
- Affective: which relates to strategies that engage the feelings of the student with a view to enhancing the meaningfulness of the learning experience and personal connection to the learning content, and

- Metacognitive – which refers to the student’s ability to organize and take responsibility for the learning experience and to connect learning that occurs in different contexts and situations.

Common competencies should have the following characteristics:

- Be standalone
- Can be mapped on National Curriculum/Qualification Frameworks
- Relate to all levels of education both formal, non- formal and informal pathways, and,
- Inform decisions.

In constructing the ADEA ESD agenda, the speaker suggested using the Agenda 21 as a launching platform. The Agenda 21 is a non-binding voluntary action plan of United Nations which was used to launch EFA and MDG action plans. In particular, she referred participants to consult Chapter 36 of Agenda 21 for a summary of all discussed so far. It highlights the notion of re-orientating education towards sustainable development, increasing public awareness and promoting training in a cross sectoral and inclusive manner.

Dr Gokool-Ramdoo asked the question - Is ESD happening? She answered that, not at the pace it should be happening. Elementary to the pace is education for sustainable development. She argued that we need to integrate the values of mutual respect and support to sustain our environment.

She proposed that delegates consider the UNESCO ESD themes as useful starting points in launching an ESD initiative. Concepts inherent in SD should permeate all educational endeavours through themes proposed by the UNESCO. These are: biodiversity, climate change, cultural diversity, indigenous knowledge, disaster risk reduction, poverty reduction, gender equality, health promotion, sustainable lifestyles, peace and human security, water and sustainable urbanisation.

She also proposed a systems approach which recognises that ESD is the backbone which will hold the education levels together. It is only when the common core competencies identified by the ADEA stakeholders start talking to the DESD themes in a manner that takes into consideration specific contexts and cultures that the identified and much required paradigm shift can take place. The paradigm shift will foster and reinforce interconnectedness of all sectors and will make each individual take informed decisions that will contribute to sustaining environment/s in which that individual operates in a manner that will ensure inter-generational equity. She maintained that apart from the participants included in different educational levels and pathways, it was equally important to provide capacity building to (a) policy makers and (b) journalists and other media individuals. With this approach, the ADEA will work towards forwarding Agenda 21 in the African region.

### **2.3 Common core skills for lifelong learning and sustainable development in Africa- Presentation of the outcomes of ADEA 2012 Triennale**

Dr Amina Yekhlief, one of the ADEA Triennale coordinators, noted that the presentations related to ESD made in the Triennale earlier this year, came from the non-formal and formal sectors and the private sector. The themes focused on four dimensions – saving the environment, creating inclusive societies and reinforcing mutual and cultural knowledge.

She noted that if education is to contribute to sustainable development it has to focus on the pertinence and efficiency of competencies and knowledge. Basic education must allow individuals to attain core competencies to be able to have sustainable livelihoods. In 2010, ADEA developed a methodological framework which puts these competencies together in an integrated manner. Lifelong learning is central to this.

Dr Yekhlef proposed that education for sustainable development (ESD) has a focus on critical thought, scientific thought and the capacity to react to change. ESD considers values and attitudes as well as culture. The global ESD needs to be systematically instilled but, she argued, that we can look at innovative experiences, in particular the innovative approach pertinent to the African context in non-formal education, for example Mali.

She noted that a synthesis on ESD would stress the importance of a holistic approach which integrates non-formal and formal education systems. Apprenticeship is central to this approach which cuts across all dimensions and promotes life- long learning. The language of instruction is key to this process.

Key messages of the ADEA Triennale are to:

- Develop new curriculum on core competencies for education for all
- Examine the pedagogical principles and class management approaches in schools
- Institute practical evaluation systems to interrogate these competencies

The speaker touched on the OECD experience which focused on a conceptual framework to organise the core competencies needed for European countries. She noted that the process is long and complex. There is a need to select desirable competencies that are useful to learners and that inclusive of all learners needs.



## 3.0 National Experiences: Mauritius

### 3.1 Maurice Ile Durable, Prime Minister's Office

Mr Osman Mahomed, Executive Chairman of the Maurice Ile Durable Commission, from the Prime Minister's Office, Mauritius, made a short presentation and then showed a short film on the country's initiatives in sustainable development. He noted that girls perform better in education than boys in Mauritius. He also noted that the proportion of female candidates in the coming elections is at an all-time high. He then presented a short film where the Prime Minister opened with a short speech on the importance of ESD – on how Mauritius is transforming the economic and social environment of the country in a sustainable way. The film highlighted the fact that there was a specific fund to support the initiative. Mauritius is projecting itself as having an indigenous solution towards SD: inclusive growth and sustainability in energy. Poverty alleviation is part of sustainable development. The process for implementing the country's action plan, some 150 projects, seeks to bring coherence and visibility to this initiative. Civil society has a key role in monitoring the process.

Mauritius is using two areas to measure progress in terms of implementing ESD: – improved equity in the human development index and the Gini coefficient; and 100 per cent literacy by 2020. Mauritius wants to become a fully -fledged knowledge centre for ESD.

### 3.2 Policy-makers: a Sustainable Development challenge?

Dr. Vasantt Jogoo a Sustainable Development consultant and previous Chairman of the Maurice Ile Durable Fund, noted that there are multiple definitions of sustainable development. It was introduced in 1987 by the Brundtland Commission which aimed to reconcile economic, social and environmental objectives. However in practice, the activities carried out within the SD framework have retained economic growth as the predominant paradigm. The move towards espousing the SD principles are further compromised with the lack of sustainable development indicators, thus retaining the focus of development on GDP.

There are practical and theoretical problems linked to sustainable development. Sustainable development tends not to be a dominant paradigm as split across multiple implementers. Globally there has been very little progress if we take the Environment as a starting point.

What are the basic theoretical and practical problems related to sustainable development?

- The needs of humans versus the need to preserve the earth. He noted that the issue is not to save the planet but to save the human race.
- Local benefits versus human common goals
- How to balance development between regions. Politicians privilege economic development in their regions.
- Dealing with diversity cultures and races.
- Development needs of developing countries versus protocols established by developed countries with regard to the emission of Green House Gas that often accompany development initiatives.
- Recognise sustainable development as development issue, not just environmental issue
- Need to improve inter-agency collaboration

The speaker also highlighted the important role of the state in promoting the SD agenda in given countries. There is a continuous need for state intervention for the public good. Private business is unable to cope with the magnitude of implications of reorienting development agendas towards SD.

The speaker noted that national sustainable development strategies need to be multi-dimensional and comprehensive that covers all sectors. Dr Jogoo argued that it was a good idea to have a global policy as well as sectoral policies. He noted that some countries have adopted cross sectoral approaches such as poverty reduction strategy. However, he was of the view that global policies carried more promise and could enable a systemic integration of the principles of SD in development activities.

Dr Jogoo illustrated some of the short and medium term challenges facing policy makers. In Mauritius the sustainable development policy process has been long and complex, but still there is not sufficient articulated policy on the ground. There is a tendency to be reliant on external expertise. Dr Jogoo noted that there is a problem with the institutional grounding of sustainable development– is it the prerogative of the Ministry of Environment or Ministry of Finance? The hierarchy of power of ministries has implications for leadership and financing arrangements of such initiatives. He noted that although there is an environmental levy in Mauritius it does not go directly into a sustainable development fund.



During the field visit, a delegated Officer from the Ministry of the Environment and Sustainable Development explained strategies adopted by the Government to protect at-risk beachers

### **3.3 Access-Benefit Sharing in Biodiversity- Sugarcane**

Dr. Dhuneeroy Bissessur, Researcher and President/Activist of the NGO, Biodiversity Action Group, spoke about Access to genetic resources and fair and equitable Benefits Sharing (ABS) in Biodiversity with reference to Sugar Cane. He explained the three objectives of the United Nations Convention on Biological Diversity:

- Conservation of biological diversity
- Sustainable use of its components
- Access to genetic resources and fair and equitable benefit Sharing

Dr Bissessur defined biodiversity as the variety of life forms on Earth that includes plants, animals and microorganisms, as well as the genes they contain and ecosystems they form. Genetic resources contain functional units of heredity that are of actual and potential value. Benefit sharing includes monetary and non-monetary benefits - business opportunities, royalties and access to permit fees as well as sharing of information between the parties, Technology Transfer of development facilities, collaboration and cooperation.

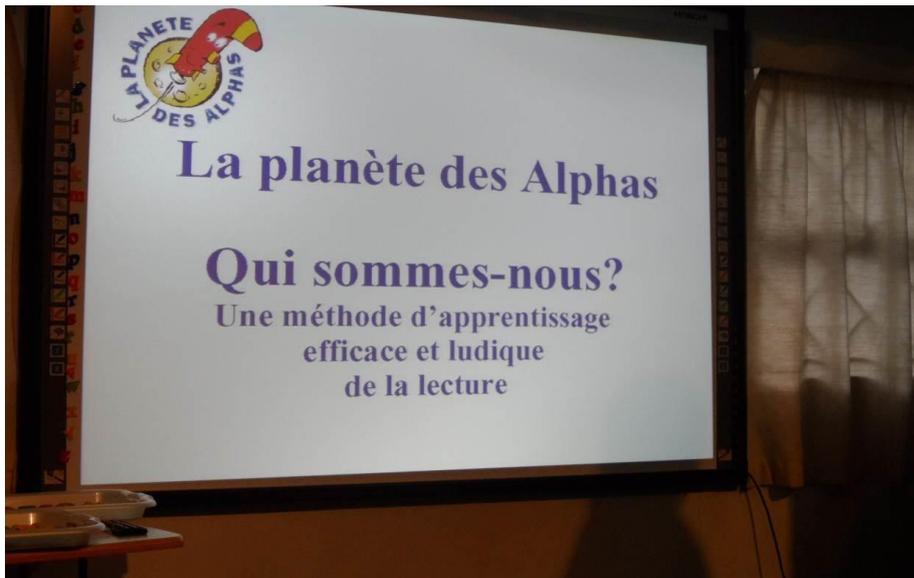
He noted that ABS involves different types of agreement that lead to benefit sharing. Bio-prospecting is a possible solution to sustainable genetic resource utilisation, especially in Africa which is a reservoir of valuable genetic resources. Africa is rich in genetic resources but its people are relatively poor. Leakage of indigenous resources leading to loss of revenues sometimes escapes Africans. It is important for them to realise how their bio-diversity can bring them revenues that can support their country's development.

He mentioned the bio-prospecting case of thaumatin, a local genetic resource found in Ghana, which is 100,000 times sweeter than sugar, as a good example of how unless properly controlled through good policy, the income generated can bypass benefit sharing for national countries. European American companies have secured the rights to its exploitation but for their economic reasons have chosen to limit its production. Patents on thaumatin are exclusively owned by them but all the benefits accrue exclusively to them and not to the local communities and national governments. There is neither benefit sharing nor contribution to poverty alleviation where it is naturally grown.

Improved access to sugarcane genetic resources and benefit sharing, since the turn of the century, has contributed to the increase in the productivity of the industry, allowed diversification of the economy and contributed significantly to poverty reduction. Both the monetary and non-monetary benefits shared made it possible for Mauritians to get access to posts at the highest level as well as created lawyers, doctors, pharmacists, engineers, and other professionals. Improvement of infrastructures including building of roads, bridges, commercial buildings, schools, colleges, universities and hotels were also achieved.

This model can be used in other bio-prospecting industries that can benefit people in other countries. It was proposed by the speaker that Africa should consider establishing national ABS authorities to enforce the appropriate ABS regulations to control, monitor and facilitate bio-prospection for the benefit of the local communities and poverty alleviation at large. There is an urgent need to track the genetic resources exploited by other users and initiate negotiations for the payment of monetary as well as non-monetary benefits.

Dr Bissessur advocated that in line with Education for sustainable development, the need for an ABS education awareness campaign is badly needed. This can be achieved through the assistance of competent organisations having achieved the relevant expertise like the NGO Biodiversity Action Group together with the ADEA. All the stakeholders will thus be made aware of the economic value of the genetic resources and sharing of benefits arising from the sustainable use of the genetic resources.



Very innovative approaches are tried out in Mauritius by NGOs to reach out the disadvantaged: here the Planet Alpha program concerned with supporting literacy- from traditional to digital.

### 3.4 Environmental Literacy Program- the Mauritius Institute of Education (MIE)

Dr. Anwarbhai Rumjaun presented a paper on the different ESD programs developed at the Mauritius Institute of Education. He listed the following programmes as being related:

- ARPEGE project on the training of teachers on environmental education.
- School Footprint – a programme with MIE linked to HIV Aids
- Evaluation of ARPEGE in 2009
- Education and Communication for Sustainable Lifestyles (ECSL)
- The Environmental Literacy Programme and its accompanying Teacher Training Module, funded by the ADEA
- The UNESCO Climate change education for Sustainable Development programme (CCESD)
- The Africa Adaptation Program
- National institute for sustainable education which was launched in 2012.

He noted that the ARPEGE project involved a primary and a secondary school in each of the four educational zones concerned. The focus was on the training of trainers. Training focused on integrating environmental education into the curriculum. Students ultimately engaged the community on a littering issue using the new pedagogical approach.

The speaker noted that in collaboration with SADC, MIE developed environmental standards for lower secondary curricula focused on knowledge, skills and attitudes.

The HIV and AIDS project looked at exploring integration of this area into the curriculum from the policy level to the school level.

The ECSL project looked at sensitizing school leaders, inspectors and curriculum developers on the ESD issues, and specifically on how to train, how to integrate environmental education into the curriculum.

The situational analysis of ESD in the school sector was another project. This report noted that the curriculum integration since 2005 has had numerous gaps and does not have a holistic philosophy. Dr Rumjaun noted that the teaching and learning strategies were too teacher centred. There were insufficient resources and there was a disparity in the school management practices – some schools were very participative and others not engaged in ESD.

The Environmental Literacy Program, an offshoot of an ADEA -funded study, was part of the research activities towards the Triennale of 2012. It led to the theoretical background of the present workshop and also culminated into a 30-credit module that was developed by the research team. The Environmental Literacy Programme addressed some of these challenges highlighted in the Situational Analysis Report that was funded by the UNESCO.

The UNESCO-funded CCESD programme focuses on capacity building in particular in developing a resource pack linked to climate change in ESD. This is a current project focused on re-orientating curriculum developers as well as educator practice for lower secondary teaching.

The speaker noted that although a lot has been done there is still room for development. Generally policy makers need to be more sensitized and knowledgeable. Institutions need to address curriculum and resource related development; teacher education and examination bodies. School management practices need to change which allow school leaders to integrate ESD into their schools in a sustainable way.

### **3.5 Multiple Literacies- Société pour la Promotion des Entreprises Spécialisées (SPES) Case Study**

Elodie Mariette, a psychologist with SPES, presented the NGO as a case study for its engagement in a literacy programme that focuses on using innovative tuition with e-tools, games and an android robot to teach vulnerable groups – disadvantaged youth, women and the handicapped to read and use the computer. Their main objective is to train trainers, using a specialised team of psychologists and teachers. She argues that their methodology is an excellent way to address affective and effective learning for dyslexics and handicapped learners. Mothers are taught to help their children.

The NGO works in technical association with the Tokyo University, Japan who have developed the robot to assist in this multi literacy blended capacity learning.



.... For Mauritius it is vital to reconcile the Land and the Sea. Here a barrier is erected to protect the beach against erosion

## 4.0 Sub-Regional Experiences

### 4.1 Burkina Faso

Prof Kabule Weva, the Burkina Faso representative, presented the lessons learnt there. In Burkina Faso, it was noted that there was an environmental education programme which is an interdisciplinary initiative aimed at schools. The aim is to modify the behaviour of students. In 2004-2011, funded up to \$4 million by Canada, the Burkina project began based on the Rio principles of sustainable development. Professor Weva, a representative of the University of Moncton of Canada which was the technical partner in this initiative. The project was known as the management of ecosystems on the local communities of Burkina Faso (GEBC). Delegates were sent to Canada to learn the experiences of how they have integrated ESD in their local communities.

The speaker noted that the project focused on the development of capacity in conservation of ecosystems based on the activities of communities. The team was interdisciplinary and involved in local governance, education, health, nutrition, etc. Journalists were involved as well as community radios. The idea was to transfer skills and competencies.

In this initiative, education was seen as cross cutting issue across six themes: - water, infectious diseases, climate change, etc. The project initially started at primary school level but moved to the secondary level. Prof Weva argued that the value of this project was it demonstrated:

- Complementarity between cognitive learning and practical learning- both practical and behavioural and theoretical integration.
- A new education philosophy linking the school and society in the context and methods of traditional disciplines
- The learning of problem solving that allows participants to understand their livelihood contexts.

He noted the challenges faced by the project as involving insufficient coordination of actors and weak contribution from national finances. Nevertheless he recommended the lessons learnt from this initiative as follows:

- The African culture and traditional values are linked to ESD
- All the local knowledge was integrated into the curriculum
- The transmission of traditional knowledge was incorporated into the pedagogic process.

In conclusion, he noted that the government has ensured ESD is placed in its strategy of national development but more needs to be done.

### 4.2 Kenya

Mr Ayub Ndaruga, a representative of the Ministry of Environment and the National Development Authority in Kenya, presented their lessons learnt. He noted that Kenya has a natural resource based economy with a number of key challenges. Socially these are poor governance, bigotry towards cultural diversity, ethnic violence, gender bias, high prevalence of HIV/AIDs, TB, malaria, insecurity including terrorism, drug and substance abuse among youth and an erosion of cultural values. Economically the challenges include poverty, inadequate infrastructure, rural migration, corporate irresponsibility, and poor economic performance. Environmentally, they include soil and land

degradation, loss of biodiversity and forest cover, acute water shortages, poor waste management, and regular natural disasters.

Environmental education was integrated in schools since 1984. Kenya has taken cognisance of the Rio Agenda 21. In 1999 it passed the Environment Management and Coordination Act to promote Environmental Education and public awareness of sustainable development. In 2003 Kenya developed an ESD strategy. Life Skills Education was introduced as a standalone subject in 2008 which addresses ESD within national education goals.

The National Vision 2030 indicates that Kenya must promote education for sustainable development and specified that an ESD curriculum must be developed. Kenya's 2010 constitution identifies sustainable development as a national value. Institutional policies have been created for various tertiary institutions. The national ESSP, the education plan is being finalised and ESD is a proposed investment programme for 2013-2017. ESD has been implemented since 2007 using eight interlinked strategies under the UNESCO implementation plan.

The Kenya achievements include:

- Every government department has an environmental target on improvement in the workplace – 400 million shillings now available for this.
- NGOs and private sector are actively involved in the production of activities and materials.
- Numerous partnerships with private sector, government agencies, nine RCEs established and a national RCE network in place.
- Many pilot projects are on-going such as the annual RCE conference; developing M&E tools, a national ESD baseline study done by Kenya Institute of Education and an audit of ESD was done in 2012.

Its challenges remain as advocacy is not central to all stakeholders; there is a lack of evidence of common agenda, no evidence of affirmative action in involving the media; a lack of sustainable mechanisms to ensure consultations are a continuous process; a lack of ESD materials especially for informal and non-formal levels, the current curriculum is exam orientated; a lack of pre-service and in-service training of teachers on ESD; the concept of ESD is not fully understood and there are very few ESD experts; there is little ESD research ; inadequate funds; inadequate dissemination of information; use of ICTs to enhance ESD is minimal; and M&E not properly understood.

The speaker's conclusion is that significant progress has been made on all fronts but numerous challenges remain. He referred participants to [www.nema.go.ke](http://www.nema.go.ke) for more information.

### **4.3 Regional Experiences – SADC REEP**

Mr Caleb Mandikonza, a representative SADC's Environmental Education Programme (REEP), presented their programme which has been in existence for past 15 years. It falls under the SADC Food and Natural Resources Sector but is implemented by (WESSA) Wildlife and environment Society of South Africa, a unique relationship.

He noted that SADC has created a number of networks and communities of practice that need to be continued. The teacher education network needs to be incorporated into the ESD Technical committee. Mr Mandikonza noted they needed to upscale good practice as the tendency is to have

isolated projects. SADC needs to think about partnership and collaboration as it's the key to sustainable future. There must be a coordinated approach.

The SADC REEP was established by SADC in 1993 and focuses on enabling the Environmental Education (EE) and ESD practitioners to strengthen these processes.

SADC-REEP works along 5 components:

1. Policy alignment with the SADC RISDP; the production of policy briefs
2. Networks and coordination – creating communities of practice and RCEs; partnerships with international organisations such as UNEP, etc, Swedish fellowships,
3. Research – coordinated by Rhodes University with 10 universities to undertake research on assessments of member states of their capacity gaps and needs.
4. Skills development in the development of learning resources
5. Provide training in EE and ESD – from two day high profile workshops for decision makers to one month training; working with ESCA and MESA course developers network and UNISA

The speaker noted that the lessons learnt include key leadership qualities, problems of policy synergy; lack of clarity of understanding of the concept of ESD; Learning networks are critical in linking policy with practice and as for a for information sharing and capacity building.

#### 4.4 GIZ programme on ESD: India, Mexico, South Africa and Germany

Ms Michela Reithinger, the GIZ coordinator of the four-country ESD project, noted that ESD is a multi-dimensional challenge and it is important to recognise that it is an international theme. There was UN Decade of Education 2005-14 with a focus on integrating ESD into education systems. The other key international initiatives of EFA, MDG and UN Literacy Decade are critical but there is not enough integration with ESD themes.

The speaker noted that ESD has a number of dimensions. It focuses on local and global, timelines of past and present to the future, complexity, values and learning society, and it includes inter-sectoral systemic thinking.

The GIZ programme was developed with the relevant countries in the four continents with a focus on human capacity development, dialogue and networking. The programme begun in 2009 with an initial assessment of country capacities. The programme created an ESD experts network involving ministries, universities, and NGOs. This think tank has developed a teacher training module, lifelong leadership training, raised public awareness through conferences and websites; and been responsible for the production of research papers among others.

The programme covered a two-fold approach:

1. A whole school approach was adopted. Each country has two pilot projects involving numerous participants.
2. The leadership training to gain competencies in change management and systemic thinking components. The participants underwent two country experiences both Germany and another country. They then run national workshops of training other trainers.

After the training sequence there is a meeting on alumni on sharing experiences and ways to go forward. There have been a number of international conferences under this programme in the four countries looking at ESD challenges.

The speaker noted that the lessons learnt are as follows:

- New learnings of ESD arose from diverse nature of participating countries in the expert network
- Deeper understanding of concepts and doorways to ESD
- Experts network provided an opportunity to share global lessons but country- specific experiences.
- Sharing of diverse experts enriched the ToT curriculum
- Enabled moving from theory to practice of ESD
- Multiplier effect was possible at the country level.
- Leadership training gave deep understanding of need for change management
- Innovation projects provided opportunities for testing new approaches to ESD

She referred delegates to the project website – [www.esd-expert.net](http://www.esd-expert.net); where concept papers on different aspects of ESD, an ESD leadership training programme, international Teaching of Trainers manual on ESD can be found. Accreditation of the training is planned.

#### **4.5 Hidrolution: Managing Water based Waste in Spain.**

Dr Grace Obado, a water waste expert and representative of Hidrolution, a private sector company based in Spain, shared her country experiences. She noted that after 15 years of research this company believes it has developed a new technology to deal with water waste using certain plants which indicate and process pollution. She spoke of their initiative in Mali in an area where the child mortality rate was high because of water related diseases. With the introduction of the Hidrosolution initiative child mortality dropped by 70 per cent but political problems of ownership remained.

The speaker noted that the drinking of waste water is a management challenge so the water is largely used for irrigation. Increasingly there is a shift from mechanism technology to innovative technology solutions.



Representatives of the countries, ADEA and Partner Agencies listening to a presentation made by the Mauritians

#### 4.6 Uganda

Dr Jessica Aruti, an associate professor at Makerere University, shared the teacher education ESD strategy in Uganda.. The education context in Uganda can be characterised as follows:

- As a result of universal basic education in Uganda there is enormous increase in enrolment but quality is a challenge.
- The education system is very examination driven.
- The system is regularly affected by teacher and student strikes and unrest.

Dr Aruti noted that teacher education happens at three different levels. The first category are those with 10 years of academic schooling who receive two years of pre-service for under-qualified teachers and they can only teach in primary schools; then those with 11 years of schooling obtain a three year qualification and can teach at secondary levels and finally those with 13 years of schooling who can obtain a degree and teach at secondary level. Each type of teacher education is accredited by a different authority. The challenge is working with the different bodies in integrating ESD into a common teacher training curriculum. Additionally, the university controlling teacher education is not actually Makerere University, which creates additional dynamics. At Makerere Dr Aruti reported they created an ESD club which brings together teachers and students on the related issues.

She noted that they have designed a short course – 4 weeks – which covers the basic concepts and pedagogy linked to ESD. Additionally they have developed training of trainers which promote ESD into the curriculum.

#### 4.7 Burundi

The representative from Burundi, noted that many countries in Africa have a narrow focus on planting trees but sustainable development is bigger than this. The speaker noted that in the case of ESD there is a tendency to leave the issue to the NGOs. The issue of gender and women's education are central to ESD as many are involved in education. In Burundi despite the introduction of free

primary education, gender related issues are not properly addressed. Girls seldom transition to secondary and tertiary levels. According to the Burundi Constitution 30 per cent of leaders should be women but seldom is this realised.

Burundi has introduced health care for under-five children. There is free health care but little emphasis on the importance of limiting the population and environmental impact of growing of population on the land. There is a huge impact on the land resources because the country has one of the highest persons per square kilometre in Africa. This is a real challenge for Burundi.

#### 4.8 The Youth Representative

Ms Tamoifo Nkom, a representative of the regional youth network for forest REJEFAC, and founder of an organization “*Association Jeunesse Verte du Cameroun*” based in Cameroon made a presentation on green jobs and ESD that they are doing on a project on solar Energy. She stated that after the Rio conference, the regional economic community of central African states, CEEAC and the commission for forest COMIFAC, created a conference called CEFDHAC for the region on sustainable development where we had the regional network for parliamentarians, indigenous, youths and the role of the women in society in promoting this strategy. There was also an emphasis on the impact the youth can have on ESD in building capacity in this regard.

She noted that in Africa youth constitute the biggest group, representing up to 85 % of the African population, the power of change. However, there is very high fragility among youth particularly in central Africa with respect to employment. Ms Nkom noted that green employment is often defined as the employment in agriculture and new types of technologically based industry. However, the definition is not clear and comprehensive.

Ms Nkom noted the Youth network’s achievements as:

- Set up an network for exchanging ESD ideas about youth
- Organise campaigns at local level to integrate the viewpoints of youth
- Work with FAWE to focus on the young girl.
- Study visits to parks for youth to raise the awareness of the environment
- Training of young leaders to use alternative technology
- Pilot a project with local communities (PODC) on solar energy
  - o Train 60 community representatives on identifying priorities
  - o Develop partnerships with local communities
- Training in citizenship, conflict management, leadership and governance.

The challenges remain as:

- Lack of sustainable funding for projects
- Lack of use of sustainable technology
- The knowledge on green economy.
- The need for continental education and communication tools and youths strategies on ESD.
- The training of trainers on ESD.
- Transmission of oral knowledge of elders to the younger generation.

The Youth network has initiatives in Congo, Burundi among others.

#### 4.9 Lesotho

Lesotho has a national ESD vision which covers the period from 2006 to 2014. Lesotho is looking for societal transformation. Additionally an Environmental Network was established in 2010.

#### 4.10 Benin

The representative noted that there was a World Bank project on ESD but since the funding has dried up this has ended the project. Benin has a plethora of problems but the country needs finance to address the challenge. Currently the country does not have the means to think about ESD. However, the representative noted that they developed environmental education curricula for schools in 2004. He noted that we can only speak of strategy if we have relevant tools and materials available.

#### 4.11 Presentation of Ministry of Environment and Sustainable Development ,Mauritius

Mrs. Vimla Kanhye from the Ministry of Environment and Sustainable Development, Mauritius provided a broad-brush picture about environmental education activities and indicated how there was a shift from Environmental Education to Education to Sustainable Development. She discussed a booklet that she had conceptualised and which appropriate instructional design informed by principles of distance education and ESD by Dr. Gokool-Ramdoo (also a Keynote speaker for the Workshop) who was then Advisor to the Minister of Environment was finally published as Activity Book for lower primary students. Intensive capacity building sessions involving pre-primary and primary teachers were then carried out to support the in-class use of the Activity Book called “**This is the way... I live in Mauritius**” being the spirit in which it was developed.

The major aims of the booklet were as follows:

- To develop responsible behaviours and attitudes among young children for environmental protection in a fun-learning way (through: colouring, drawing & creativity)
- To develop creative thinking in the child using the environment as a medium

Along the same principles another existing program –Green Schools- was given an additional impetus with the development of instructional materials and associated capacity building. This project was called the **School Endemic Garden Project**. It concerned the setting up of an endemic garden in all primary and secondary schools over a period of 5 years, starting from 2010. This major aim of this program was to promote understanding regarding the development of responsible behaviours with regards to caring for plants which are important in biodiversity conservation. The following instructional materials were developed:

- Toolkit for Teachers
- Brochure
- Poster
- A short clip of about 10 minutes

Other projects included the **Waste Segregation Project in schools** which primarily aimed at promoting the concept of waste sorting and recycling in our school children and educating children so that they may positively influence their parents to start sorting out their waste and to compost

their biodegradable waste at home. Along a similar vein, the **Rain Water Harvesting Project at Community level** was proposed in the context of the African Women's Decade. This was crucially important to raise awareness regarding women's role in mitigating climate change. This project was launched on pilot basis at 3 women centers and will be extended to the other women centers. It aimed at sensitizing women on the importance of water, minimizing use of tap water and developing skills regarding the collection of rainwater. Financial benefits in terms of reduction in the water bill were stressed.

Other noteworthy projects that were of especial relevance to the Workshop, were the **Medicinal Plant Distribution Campaign with women community** which aimed at encouraging the women community to rediscover the virtues of the local medicinal plants and the richness of the local biodiversity. Another aim was the promotion of planting of medicinal plants as a family activity at home so that it is easily available for healing various diseases. Towards increasing the visibility of Climate Change a **Knowledge fair on Climate Change** was organized for 3 days including a seminar to sensitize students, women community and the general public on climate change adaptation and mitigation activities being undertaken. Finally, the Ministry was very active within the development of the **Maurice Ile Durable** framework. To make it relevant to the public, it prepared *bookmarks* with environmental tips to promote sustainable lifestyle as well as banners for use in exhibition during sensitization campaigns.

## 5.0 Group Report Backs

### 5.1 Group One: Promoting a common set of core competencies in education for sustainable development: strategies and mechanisms for learning and capacity building.

Group One, which combined the themes of "ESD, Teaching, Learning and Capacity Building: Strategies and Mechanisms to promote critical core competencies"; and the theme of "Literacies: An effective approach to ESD" made the following presentations.

Until recently educational strategies focused on environmental education (EE). However, the current problems facing development have extended the concept to that of sustainable development (ESD) which refers to the ability to produce a development that meets today's needs without compromising the possibilities of future generations to care for their own needs".

The key challenge of the Group One mandate is, therefore, to identify what was not covered by Environmental Education, look at the gaps in policies and practices, and propose real answers to the challenges posed by the implementation ESD programs in African countries. In concrete terms, the Group would see what must be undertaken at the level of the curriculum to reflect the paradigm shift. In particular, the Group would scrutinize the following areas: the teaching/learning programs, the training of teachers and NFE facilitators, Pedagogy and what it takes to implement the new paradigm in class setting, learning assessment, and resourcing.

In order to cover these, the Group adopted the following methodology: First, it clarified its mandate as to be in line with the recommendations of the Triennial regarding the development of a common set of core competencies.

a. This means that the Group to start from presentations made during the plenary sessions and from relevant experiences of the participants in order to analyse the implications on: (1) learning, (2) education and (3) capacity building.

b. This is not to invent new teaching/learning areas, but start from the existing ones and reflect on how to improve them.

Secondly, the work should be as participatory as possible by including in the reflection the representatives of ministries, as well as those from NGOs and other civil society organizations; priority must be given to field experiences in the represented countries and to the youth.

Third, It is based on the needs, starting with the student competencies and the learning processes before tackling the teaching itself.

### **Core competencies to be acquired by learners in the context of ESD**

A part of the cognitive usual skills, the curriculum must integrate ESD into the curriculum through developing the skills related to values, attitudes and behaviours. Consequently, the Group recommended that emphasis be placed on:

1. critical thinking,
2. scientific expertise,
3. the cognitive and social skills,
4. life skills,
5. decision making,
6. the ability to solve problems,
7. conflict prevention,
8. the ability to implement human rights
9. Respect for difference and the ability to effectively react to changes

### **Core competencies to be acquired by teachers in the context of ESD**

Among the skills to acquire the following were highlighted by the Group:

1. Being able to organize and facilitate effective learning situations;
2. Mastering the techniques for managing and accessing progress in learning;
3. Being able to design and develop mechanisms of differentiation in the learning processes, so that each student can progress at his own pace;
4. Knowing how to effectively involve learners in the learning process;
5. Being able to team work and function effectively a group;
6. Being able to participate in the management of (formal and non-formal educational institutions;
7. Knowing how to effectively inform and involve parents;
8. Mastering the use of new technologies;
9. Being able to define success criteria so that the learner is comfortable with learning;
10. Being able to lead extracurricular activities;
11. Being able to contextualize learning through teaching aids and other teaching tools;
12. Being properly equipped to manage ethical dilemmas of the profession;
13. Knowing how to manage his/her own training.

### **Implications for curriculum development**

The group was particularly interested in the implications resulting from the introduction of these skills at least in six areas of the curriculum: teaching programs and curricula, the training of teachers / facilitators, instructional approaches required by the new approach, implications for learning

assessment, and the resources it takes to support the change.

#### **A. Teaching programs and the Curricula**

The first question we must ask is whether the skills mentioned above already exist in ongoing curricula and programs. Then the issue is how to integrate the missing ones. In this regard several countries (Swaziland, Burkina Faso and Lesotho in particular) noted the difficulty of incorporating these skills into ongoing programs.

National languages in formal and non-formal education, as well as the programmatic and financial implications of the proposed changes were also discussed. It was suggested to learn from Kenya, Burkina and other country's good practices. References to cultural values and indigenous knowledge should also benefit from the attention of educators in the context of ESD (thematic lexicons case in national languages, botanical taxonomies, etc.).

Also on the program, it is essential to incorporate into our thinking all that takes place outside the usual framework of education and training in the street in the community and elsewhere. Musicians and local artists can, for example, play a great awareness and education for sustainable development. Street theater, video spots, and others may be powerful vehicles for promoting ESD advocacy messages.

#### **B. Teaching and Learning**

The Competency-Based Approach to learning was debated and sometime questioned. However, a consensus was reached that this is the approach best suited to implement Education for sustainable development (ESD) in Africa.

#### **C. Student Performance Evaluation**

The participants stressed that the challenge is the effective integration of emerging ESD themes in national examinations. Such challenge includes: (1) how to manage the number of examinations under the new approach, (2) how to overcome previously acquired habits that are too much ingrained in the practices of country examination services, (3) how accurately measure know-how, life skills, social value, behavior, and alike, (4) How to develop guidelines for teachers so that they could measure these forms of knowledge? (5) What strategies to put in place for equivalencies and bridging especially with regard to the non-formal and the formal subsectors (6) how to ensure that the themes and the new strategies are actually reflected in classroom practices, (7) how to ensure that universities and other higher education institutions are effectively involved in finding solutions to the problems of learning assessment in the context of ESD, etc.

#### **D. Training of teachers and facilitators**

The meeting noted that the essential skills is already known and taught in many African countries. But, often, the problem is to know and be able to demonstrate these skills in their daily practice. That is why the first step is to clearly define the competencies.

Then, we must review the training curriculum so that these skills are not only reflected, but mastered by teachers and facilitators and actually used in daily classroom practices.

The meeting also focused on the development of skills for learners, parents, local community members, and inspectors to complete and support the actions of teachers and facilitators in the learning settings.

All initiatives that promote the strengthening of both the initial training of teachers on the themes of ESD on the actions of local educational supervision are seriously considered in policy formation.

In this spirit, the school principals and inspectors of education will not be left out because of their role in the implementation of the curriculum.

#### **E. Educational materials**

Particular emphasis was placed on teaching materials that have been considered essential to the success of ESD, as well as teacher training. This is why the group chose the tools needed to produce in quantity and quality that would reflect the priorities of the ESD for both the formal, non-formal and informal subsectors.

Particular emphasis was placed on the production of manuals for student, teachers' guides and other reference materials in the form of "tool kits", as well as additional reading material, both in European languages and in African languages.

It was also suggested to take advantage of the new Information and Communication Technologies. For example, there undeniable educational benefits of using mobile phone today in Africa, as well as rural radio programs, and newspaper articles on rural life to better carry messages of ESD.

Finally, to facilitate the work of sensitization and mobilization of all actors and partners, communication media will be useful as posters, flyers, and stickers produced in English and French and African languages .

#### **F. Partnership**

The discussions revealed the need for opening the school to other initiatives developed by other stakeholders which raises the issue of coordination of interventions that could lead to the creation of a multidisciplinary steering the ESD at country level. Indeed, the cross-cutting nature of ESD has been highlighted. This is a subject that cannot be treated independently. Inter and intra sector's collaboration as well as the praxis approach of learning by doing should be emphasized.

It's the same synergies and complementarities between the programs, including the development of bridges and equivalences between education sub-sectors (formal, non-formal, informal, etc.).

Finally, within ADEA itself, it was advocated to develop close collaboration between the different working groups whose activities can be related to ESD. These groups include: the Working Group on the Teaching Profession, the Working Group on Higher Education, the Working Group on Books and Educational Materials, the Working Group on Non-Formal Education and the Taskforce on the Teaching of Mathematics and Science.

## **5.2 Group Two: ESD and Higher Education, Research and Development for Employment and Sustainable development**

Participants in the Group 2 discussed the fact that Africa is endowed with vast natural resources, mineral wealth and agricultural capacity, yet little profits have been gained from their exploitation. In addition, most of its products have lost market value in an increasing technological market as a result of limited value- addition. Science and technology is perceived as the key driver for socio-economic development as well societal transformation for a sustainable development.

While tertiary institutions and in particular the universities have changed tremendously since independence, there are still many changes to be carried out for these institutions to play their rightful role on national, regional and global levels. One of the challenges is the ongoing

environmental degradation and climate change which pose threats of food security, water supply, and ecological systems that are a persistent challenge. Sustainable development is therefore not just an option for Africa but a scientific and technological imperative. The continent also faces the challenges of implementing international commitments such as Millennium Development Goals (MDGs), trade and climate change protocols.

Each participant presented a brief on their respective national strategy and reform on ESD.

The main discussion was focused on the following:

- How is Higher Education defined? What levels of education constitute higher education?  
Post secondary
- What is happening in country with Sustainable Development
- How are Universities mainstreaming ESD?
- How best can ownership and attitudinal change be achieved?
- How can policies be translated into productive actions?

-  
One of the main suggestions was to promote common understanding of ESD in all line ministries & organizations , develop national indicators of effective ESD, articulate the global and sectoral ESD strategies and positioning & ownership of ESD at the highest level of government.

The Group 2 concluded that public and private investments in tertiary education are critical to the development, acquisition and utilization of scientific and technological capabilities and the overall sustainable socio- economic development in Africa. Since within tertiary institutions are concentrations of highly trained expertise and locations of scientific and technological infrastructure, such institutions are therefore indispensable components of the national research and development and innovation systems for the implementation of ESD . The discussions thus interrogated the effectiveness of tertiary institutions and in particular research universities in undertaking their mandates on ESD.

How then do tertiary institutions contribute to ESD through training of scientists producing the necessary research and innovations, and linking their outputs to the productive sectors of the society? How do African countries maximize the contributions of tertiary education to research and development in maintaining quality, establishment of Centres of Excellence, development of differentiation in Higher Education (HE), utilization of ICT, building vibrant research communities, regional and South to South exchanges.

The group concluded that HE and research institutions in the context of sustainable development must reinforce innovation and scientific and technological culture. The effort to ensure relevance can lead the higher education sector to open up more to its immediate surroundings: regional, national and local. The universities must create stronger ties with its immediate environment. Community-based education can be a good example here. In some African universities, students, especially in medicine and agriculture, were called upon to encourage the participation of local communities and to learn from them in order to resolve problems linked to their development and environment. Some institutes of science and technology promote low-cost technological solutions to resolve local problems in energy supply, domestic waste management, storage and processing.

Africa is replete with traditions and practices inherited from the past in every sphere, and some of these can be studied and developed.

### 5.3 Policy and Partnership Frameworks

Participants in discussion on the findings of the group noted that it is critical to develop national ESD indicators if progress is to be tracked. It was also stressed that in order to promote research and development an enabling environment is crucial for African countries. This includes capacity building and funding. Although Universities are an enormous repository of knowledge, they tend to be cut off from other education institutions and from the commercial sector. There is a need for a sensitization of research outputs to larger audiences. Participants highlighted the importance and challenge of developing practical strategies.

#### 5.3.1 Research to the Market – the case study of CEPHYR (Centre for Phytotherapy Research)

Professor Ameena Gurib-Fakim, Director of CEPHYR, a bio-technical private sector enterprise that focuses on the medicinal and cosmetic values of plants. Prof.Gurib-Fakim proposes that CEPHYR wants to position itself as an interface between traditional knowledge and business. Historically the initiative arose from a university based research funding project, where Dr Gurib-Fakim undertook a survey of traditional medicinal plants in seven Indian ocean islands. This produced a database and a various research documents on plant species.

The speaker noted that there are some 30,000 species of medicinal plants of which 33 per cent are trees. Over 80 per cent of world population depends on medicinal plants. Africa is home to 40-45,000 higher plant species and 25 per cent of the global pool of plant genetic materials. Yet, Africa has only contributed 83 of the world's 1100 leading commercial medicinal plants. She gave the example of the potential of the baobab – venerated by neutraceutical sector – the fruit has a very high protein value (higher than milk). The cold pressed seeds are used in cosmetic creams and milk.

The professor stressed the potential of herbal remedies for providing alternatives to Allopathic medicine. She referred participants to the African Herbal Pharmacopoeia – a recent publication focused on trading standards and international norms for the markets. Documentation is very important as need endorsement from the scientific community.

In reviewing the challenges of taking research to the market, she noted that it normally it takes 15 years for a product to be cleared by the international Food Drug Association (FDA). The costs of application can be prohibitive. However, the market sizes particularly in the European Union and the States, are huge and can make the exercise worthwhile. It is however, necessary for countries to create the correct legislative frameworks for patent registration and the adoption of clinical trials protocols according to established international regulations. She referred participants to their web site at [www.cephyr-recherche.com](http://www.cephyr-recherche.com)

In discussion participants noted the loss of biodiversity of plants was an area of concern. Questions were raised on how best to preserve against the extinction of plants. It was noted that as a continent we are losing knowledge on the taxonomy of plants – this should be included in the curriculum. The loss of biodiversity in plants is estimated to be 0.6 per cent per annum globally but in Africa it is 1 per cent which is very high. It was noted that if we lose these plants we also lose traditional

knowledge and values. Our challenge is that knowledge is transmitted in an oral way and there is seldom codification.

Participants also noted the costs to move plant research and products across to the international market. It was proposed that we need effective regulations, certification and international practices. There is a need to create the enabling environment and the finances to follow.

### 5.3.2 The Indian Ocean Commission (IOC)

A representative of the IOC, Madame Gina Bonne shared the experience of the IOC in promoting sustainable development through higher education and research. Their objective is to create a critical mass of human resources in the region that are operational and active in this regard. This implies building partnerships among scientists and related networks with universities in SADC countries – particularly on marine biology. The IOC seeks to create a synergy among partner organisations to optimize capacity building activities. It also looks to facilitate access to information such as training, publications, tenders, scholarships and through regional mobility and exchanges.

The speaker stated that their strategy to bring scientific research to policy was by working with the different target populations directly. This is a challenge as the five island member states have different linguistic challenges among the local and rural populations.

The IOC support to ESD in the region includes developing the following tools for EE:

- Educational materials for children
- Handbook for teachers
- Develop module outline, short courses for lecturers
- Organised essay photo, drawings and poster competition for students
- Transmission of oral knowledge

They have also developed tools and provided training for professionals:

- Guide to management of Marine protected areas,
- Supported on-site training for professionals in agriculture, marine industries,
- Support master training for meteorologists and maritime lawyers.

The IOC defined the following perspectives and opportunities for future activities as including:

- Building synergy with on-going and future initiatives on education, capacity building and researchers to avoid duplication of action and to optimize resource.
- Updating their web site
- Adapting and enhancing educational tools to suit national needs
- Strengthening youth education by mainstreaming sustainable development into school
- Sensitization thorough non state actors, empowering and engaging civil societies in the education process
- Developing the IT sector to promote learning and access to information

The speaker noted that IOC is driven by member states and assists them in responding to various international conventions. Their entry point is with the Ministry of Foreign Affairs. They also have focal points in the Ministries of Environment. They have also created the Committee of Sustainable development under the auspices of Prime Ministers' offices. Further, the IOC encourages the engagement of country NGOS by encouraging them to apply for IOC projects. IOC trains the NGOs to

apply and then accompanies them on operations. They are then monitored for financial accountability. It is important to have firm lines of communication. Additionally, the IOC is working with the Universities of Mauritius and Seychelles to produce short courses on integrated SD management.

The IOC welcomed the opportunity to participate in this workshop and seeks to become an active member in supporting country engagements with initiatives in ESD.

### **5.3.3 Creation of a Platform for ESD**

The Executive Secretary of ADEA noted that in order to develop an effective platform for ESD there is a need to follow certain steps. These include:

1. Identify a small group of champion countries that have the political will to transform their education systems within the ESD paradigm
2. Identify the levers of changes that have been recognised as key
3. Identify the experts
4. Put in place the mechanisms for inter-country sharing and discourse.
5. Project an African ESD vision beyond 2015.

Dr Byll-Cataria noted that there was already an interesting dynamism within the Indian Ocean Commission – 5 islands and partnerships with countries at the mainland. There are experiments – demonstrated regional communities engagement. The partnership with IOC will allow us realise we need to place importance on the islands as they have different criteria – richness of what they can bring to the mainland.

The Executive Secretary proposed that ADEA wants to conduct analytical work to identify ESD experiences in 2013. On the basis of what is found, ADEA will recommend certain strategies. It is hoped that by 2015 we will have an appraisals of work undertaken that can be shared in the next ADEA Triennale scheduled for that year.

It was noted that all I heads of state will meet in New York in 2014 to discuss education and training Mr. Byll Cataria argued that as Africans we should be ready to submit an appraisal which will inform their assessment beyond the MDGs and EFA. We must stop being consumers of international analyses but generate our own.

### **5.3.4 Suggested directions**

Participants were asked to respond to the question - what did you take away from this workshop given its objectives and what recommendations would you make?

The Youth representative indicated that they had learnt more about the concept of ESD and its difference to EE. She learnt of the importance of having an interdisciplinary approach, using informal education strategies involving a multiplicity of players. She will apply her learning with youth networks.

The Burkina Faso representative indicated that their country lacks a real exploitation of their natural resources. They propose that they will set up a national centre of expertise so draw lessons to develop appropriate action plans. This implies greater engagement with the private sector. It is important that they set up a national committee.

A representative of Mauritius suggested that the strategy of sharing benefits model is important for the entire continent. We need to curb bio-piracy.

The SADC representative stressed the point about building the capacity of trainers to train trainers and looking for entry points.

The Swaziland representative proposed that we consider the **Eastern and Southern Africa curriculum consortium** as a platform for sharing and capacity building of associated countries. This is an opportunity to exploit this avenue. She also noted that the Tanzania Institute of Education offers a diploma in curriculum development and they could also be a potential partner as we need to capacitate the curriculum developers, inspectors, examination council. She requested that we explore partnerships with private sectors and agreed to lead this initiative.

Aliou Sow, a resource expert proposed that we formally engage the IOC, SADC and other regional economic communities in promoting ESD.

The Burundi representative noted that African universities in training and research programmes are disconnected and targeting the elite only. They proposed that since they are restructuring their programmes at national and sub-regional areas, they should harmonise their teacher programmes by including the interdisciplinary issues related to ESD. Further that there is a need for a collaborative mechanism to ensure that partnerships among different Ministries on ESD are effective.

The Lesotho proposed that we need to keep connected and improve communication among ministries.

Virglio Juvane, the coordinator on ADEA's Teaching Profession proposed that they bring ADEA's Working Groups on Maths and Science, on Books and learning and Teaching Professions together to develop solid and well informed evidence based framework on common core competencies. This will improve knowledge on diversity of practices across the continent. There is a need for analytical work on how countries are dealing with these challenges.

This idea was supported by the Kenyan representative who argued that there is a need to help countries simplify the concepts. By reviewing existing materials we will better identify what is needed for the development of new materials.

The Benin representative proposed the development of baseline documents, summer schools and conference involving the exchange with various agencies.

Ms Angela Arnott, from ADEA's Working Group on Education Management and Policy Support proposed the development of analytical work on developing ESD indicators and a monitoring framework for all levels of education.

A representative from Mauritius proposed that a memorandum of understanding is signed between IOC and SADC to agree on a joint strategy and eliminate duplication.

Ibrahima Bah Layla, coordinator of the ADEA working group on non formal education noted the need to develop post-literacy programmes on ESD.

In summary, the following specific ideas were noted for follow-up:

- Creation of ESD expertise centres and national committee
- Networking with countries on their best practices.
- Mapping a spectrum of achievements and experts which we can share
- Workshop on ADEA working groups on common core competency framework e.
- Mapping existing teaching materials and identifying areas for development of new materials
- Need analytical work on traditional knowledge – fight against piracy
- Development of ESD indicators and analytical work on interdisciplinary engagement
- Linking potential regional players
- Regional economic communities, Eastern and Southern Africa curriculum consortium; IOC
- Linking with Accreditation bodies to harmonise knowledge and add value to quality assurance related to ESD
- Validation of courses with ESD component
- Creating of an ESD platform – needs sub-networks supported by moderators

The first emanation of the Workshop which is a concrete expression of all foregoing discussions is the proposed Memorandum of Understanding between the ADEA and the Commission for the Indian Ocean. Areas of cooperation will include sharing a virtual space for the development of instructional materials and/or the use of existing ones as part of an exchange of good practices and expertise.

## 5.4 Closing Remarks

The ADEA Executive Secretary thanked the three key people responsible for designing the content of this work shop – Prof Ameena Gurib-Fakim, Dr Sushita Gokool-Ramdoo and Dr. Hamidou Boukary.

He noted the forthcoming steps would be undertaken by ADEA:

- A report back to the ADEA Steering Committee (12-14th Dec) on the workshop outcomes
- The creation of an exchange platform on ESD for associated countries
- Development of an ESD policy brief for Heads of State in Addis in January 2014
- The promotion of protocols with key regional organisations

He referred the plenary to Mr Beedeenam Conhye, ADEA's Knowledge Hub manager, who offered ideas on creating a knowledge hub on ESD. This included creating a listserv of ESD participants for electronic discussions and ADEA's Basecamp software on its web site which acts as a repository of documents. Kindly refer to [www.adeanet.org](http://www.adeanet.org). The GIZ was thanked and all other role players who ensured the success of the workshop.

## 6.0 Way forward

To sum up the foregoing discussion, the following is a summary of identified challenges that emerged from debates based on participant experience. They are a condensation of all ideas that were discussed during the Workshop and should form the basis for action.

### IDENTIFIED CHALLENGES

1. Policy-makers remain a bottleneck since they were often not convinced enough of the urgency of the need to integrate ESD at the different educational levels, sectors and pathways

2. Strategies to introduce these have also not sufficiently been delineated or rendered contextually and/or culturally relevant and responsive
3. Lack of harmonization: disparate agendas are trapped within different agencies, ministries, NGOs or blocs of countries distill the strength of intended interventions
4. Too much focus on formal education and especially at primary and secondary school levels often at the expense of tertiary education
5. The non-formal and informal pathways which may have better impacts on the integration of ESD in a country's development agenda are often neglected.
6. The roles of the media, journalists and NGOs are taken for granted. Their outreach capacities should be adequately supported for optimal effectiveness.
7. ESD, especially externally developed projects are not a priority but exams are.
8. There are no established benchmarks to measure progress achieved in ESD.

**Based on the above identified challenges the following are the way forward that will be adopted by the ADEA ESD platform.**

### **RECOMMENDATIONS**

1. To engage in ESD advocacy and capacity building for policy makers
2. To develop a Memoranda of Understandings between different blocs of countries and/or agencies as appropriate with a view to harmonize agendas for improved efficiency and effectiveness
3. To provide more support and capacity building opportunities for NGOs and journalists
4. To equally reinforce non-formal and informal pathways as channels for ESD integration
5. To further develop and strengthen the development of teacher training and instructional materials destined for formal education at primary and secondary school levels
6. To reinforce support the integration of ESD in all educational levels (primary, secondary, tertiary), sectors (professional, general and vocational) as well as pathways (formal, non-formal and informal) and have these mapped across National Qualifications Framework
7. To make full use of opportunities provided by technology and social media with regard to sharing of ESD-dedicated space.

## Appendix 1

### Group 1: Textbooks and other learning materials to support ESD programs (For formal, non-formal and informal education pathways)

Pathways	Targeted levels	Objective	Materials to produce	Actors
<b>Formal Education</b>	Pre-primary & Primary schools	* Education & sensitization	<ul style="list-style-type: none"> <li>● Educational contents (curriculum, textbooks, teacher guides, other manuals) related to the emerging themes of ESD</li> <li>● Reading books (short stories, children books, etc.) in French, English and African languages</li> <li>● Extracurricular materials (manuals, activity books, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>- MOEs</li> <li>- Publishers</li> <li>- Associations, NGOs (teachers unions, etc.)</li> <li>- Donors</li> </ul>
	Secondary schools	* Éducation & sensibilisation	<ul style="list-style-type: none"> <li>● Educational contents (curriculum, textbooks, teacher guides, other manuals)</li> <li>● Extracurricular materials (manuals, activity books, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>- MOEs</li> <li>- Publishers</li> <li>- Associations, NGOs (teachers unions, etc.)</li> <li>- Donors</li> </ul>
	University	* Education & Research & vulgarization	<ul style="list-style-type: none"> <li>● Projects design</li> <li>● Research-actions on ESD</li> <li>● Development of ESD contents for secondary and primary levels</li> <li>● Capacity building (teacher training, handbooks, manuals)</li> <li>● Toolkits for teachers of primary and secondary schools</li> </ul>	<ul style="list-style-type: none"> <li>- Ministries of Higher Education</li> <li>- Teachers &amp; researchers</li> <li>- Publishers</li> <li>- Donors</li> </ul>
		* Education & vulgarization	<ul style="list-style-type: none"> <li>● Learning materials (literacy, post-literacy, complementary reading materials)</li> </ul>	<ul style="list-style-type: none"> <li>- MOEs</li> <li>- Literacy programs</li> </ul>

<b>Non formal Education</b>	Youth/Women	*Strengthening of literacy programs policies	<ul style="list-style-type: none"> <li>● Various printed materials for sensitization and scientific vulgarization</li> </ul>	<ul style="list-style-type: none"> <li>- Publishers</li> <li>-Educational NGOs</li> <li>- Youth and women associations</li> </ul>
	General	<ul style="list-style-type: none"> <li>* Education &amp; vulgarization</li> <li>* Strengthening of literacy programs policies</li> </ul>	<ul style="list-style-type: none"> <li>● Learning materials (literacy, post-literacy, complementary reading materials, children books, posters, leaflets, etc.)</li> <li>● Various printed materials for sensitization and scientific vulgarization</li> <li>● Rural Radio programs</li> <li>● Rural and local press articles</li> </ul>	<ul style="list-style-type: none"> <li>- MOEs</li> <li>- Literacy programs</li> <li>- Publishers</li> <li>-Educational NGOs</li> <li>- Rural radio networks</li> </ul>
<b>Informal Education</b>	General		<ul style="list-style-type: none"> <li>● Various learning materials including ICTs (m-learning)</li> <li>● Rural radio networks</li> <li>● Leaflets, newsletter, posters, etc., on ESD issues)</li> </ul>	<ul style="list-style-type: none"> <li>- MOEs</li> <li>- Literacy programs</li> <li>- Publishers</li> <li>-Educational NGOs</li> <li>- Local leaders</li> </ul>

## Appendix 2

Group 2: ESD and Higher Education, Research and Development for Employment and Sustainable development matrix

PILLARS	CHALLENGES	SPECIFIC PROBLEM	DIRECTIONS	INDICATIVE SOLUTIONS	ADEA SUGGESTIONS
ESD concept and philosophy	- Conceptual confusion	Education, environment or sustainable development	Resolved by putting the individual at the centre of development efforts	General advocacy through dissemination of information	<ul style="list-style-type: none"> <li>- Promote common understanding of ESD in all line ministries and organizations</li> <li>- Develop national indicators of effective ESD</li> <li>- Articulate the global and sectoral ESD strategies</li> <li>- Positioning and ownership of ESD at the highest level of government</li> <li>- Development of ESD indicators and M&amp;E systems for all levels of education</li> </ul>
Government	Budget	Lack of prioritization	Reorienting developmental label	<ul style="list-style-type: none"> <li>-Systemic, cross sectoral policy reorientation</li> <li>-Ensure policy makers undergo capacity building to foster understanding</li> </ul>	<ul style="list-style-type: none"> <li>- Need continuity in governance and implementation of policies/projects</li> <li>- Form national commissions for ESD</li> <li>- Develop national plans of action.</li> <li>- Coordination and collaboration between Ministries to move away from disaggregation</li> <li>- Incentives for private companies that support ESD policy</li> <li>- ESD sensitive budgets to cater for this lack of transparency</li> <li>- Transparency</li> </ul>
Policy makers	<ul style="list-style-type: none"> <li>- ESD not a priority in terms of policy making</li> <li>- Confusion about policy and strategy</li> </ul>	Lack of understanding leads to lack of timely action	<ul style="list-style-type: none"> <li>- ESD as a priority</li> <li>- Capacity building</li> <li>- ESD the backbone of the education system</li> </ul>	Formal graduate/post graduate programmes	<ul style="list-style-type: none"> <li>- Sensitization of all stakeholders</li> <li>- Translation of Policies through training and capacity building</li> <li>- Systems for effective implementation of the various policies</li> </ul>
Education system	Higher education refocused to ESD	Rio+20 conference – sharpened focus on	Higher Education Institutions educate and train decision	Integrate ESD as a critical component in higher	<ul style="list-style-type: none"> <li>- Lobby accrediting institutions to ensure ESD elements are included in the</li> </ul>

	strategies.	higher education as a crucial driver of ESD. Its role is to be centralized	makers to empower them in their role towards creating new paradigms to foster sustainable societies. - To promote development through research and teaching, disseminative new knowledge, practices and capacity building. University based research should contribute towards NGO programmes; - business and corporate sector, industry and agriculture curriculum; specific courses aiming at the <b>further training for decision makers</b>	education programmes	programmes - Student and staff mobility across the tertiary systems in different systems. - Harmonization of programmes for credit transfers - Promote results based budgeting and performance contracts which ensure ESD is a performance measure of both the functioning of the institution to the content of the courses. - Lobby for monitoring of Universities to ensure accountability – not islands in society but to link them to communities of producers and private sector.
	Non responsive basic and secondary education	- Multiplicity of pilot projects with no sustainable outcomes without policy makers being fully convinced - Funding of ESD	- Capacity building to become part of formal Teacher Training programme - Curriculum reorientation to ensure overall compliance with sustainable development	- Harmonizing existing projects like Arpeges, Burkina Faso, ADEA – Environmental Literacy Project, UNESCO CCESD etc - Promote family literacy	- Holistic approach to education - Support to schools to ensure sustainability of projects.
Research and Development	Need of refocusing		In line with UNESCO DESD themes & national development strategy	- Promote indigenous knowledge - Health Literacy - Access – Benefit Sharing	- Documenting indigenous knowledge which can promote both ESD values and economic growth - Promote the lessons learnt from action research into concrete activities - Create enabling environment for research & development i. Promote Patent registration ii. Support action research and establishment of Incubation laboratories

					<ul style="list-style-type: none"> <li>iii. Support publication and dissemination of research findings</li> <li>iv. Capacity building for institutions to enable them carry out research</li> <li>v. Promote partnership between Universities and private sector</li> <li>vi. Knowledge transfer between Universities and local communities</li> </ul>
Employment structure	Exclusive of ESD	Employment avenues not well perceived	Promoting training & ESD complaint professional ethics	<ul style="list-style-type: none"> <li>- Training job specific aimed at filling gaps in knowledge and skills to help individuals find employment</li> <li>- To develop and review their codes of ethics and conduct to strengthen environmental connections and commitment</li> </ul>	<ul style="list-style-type: none"> <li>- Corporate social responsibility</li> <li>- Incentives to the private sector</li> <li>- Public/Private dialogue and partnerships in adding value</li> <li>- Mapping of ESD key stakeholders</li> <li>- Greater understanding of the skill profiles of green employment opportunities and ESD expertise to shape the provision of the training in the tertiary sector</li> </ul>
NGOs	Lack of support in terms of funding. Work not given centre stage. Perceived as threat by central government	Marginalized	Recognizing NGO contribution in designing and implementing educational programmes in areas that are not necessarily reached by the conventional sectors	<ul style="list-style-type: none"> <li>- Capacity building</li> <li>- Funding through CSR funds</li> <li>- Mechanism for M&amp;E to be put in place</li> <li>- Demonstrable results as KPI</li> </ul>	<ul style="list-style-type: none"> <li>- Promote partnership and collaboration between government &amp; NGOs</li> </ul>
Media, Social Networks & ICTs	Lack of established mechanisms to promote awareness	Untrained media personnel	Capacity building for media personnel including extensive and intensive use of ICTs	<ul style="list-style-type: none"> <li>- Promote environmental literacy</li> <li>- Promote scholarships for the media</li> </ul>	<ul style="list-style-type: none"> <li>- National round tables for dialogue</li> <li>- Training of journalists</li> </ul>

