

Putting CCA in the Vision of Africa Dev't:
*Results-based Activities on CC Education in
Sub-Saharan Africa*

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Measurable and Sustained Results

- **All results are based on implementation of the CC-DARE Programme in Sub-Saharan Africa from 2008 to 2012:**
- **OBJECTIVE** of the CC DARE Programme was to remove barriers and create opportunities for integrating climate change adaptation into national development agendas of partner countries
- With three **OUTCOMES** including Enhanced knowledge, skills and partnerships in systematic mainstreaming of climate change

CURRICULUM DEVELOPMENT

EDUCATION COMPONENT consists of:

- 1. The development of climate change integrated Education Curricula in:**
 - a. Benin (Secondary School level);**
 - b. Seychelles (Secondary Schools curriculum);**
- 2. The conduct of Regional and National Training Programmes based on demand**

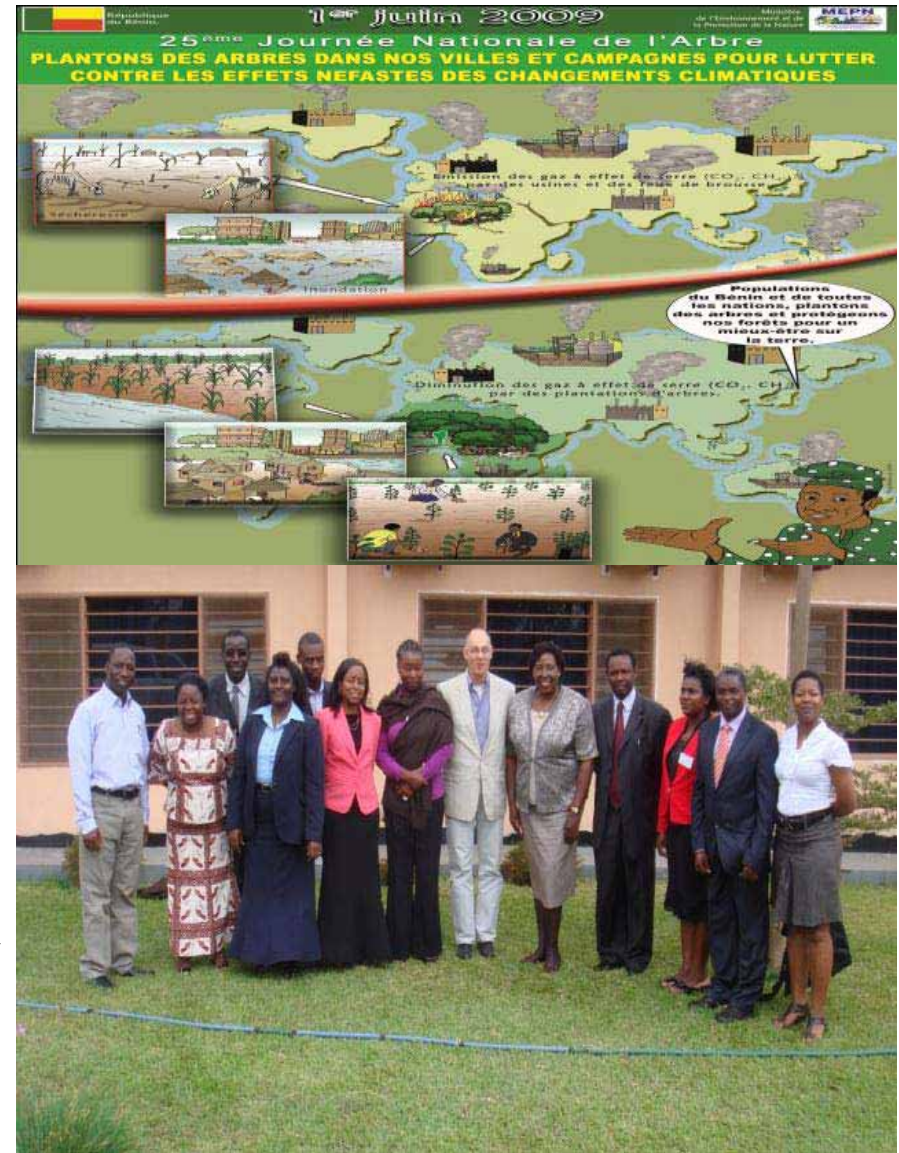
Activities Common to All

- **Identification and documentation of concerns and gaps** (*Contents, teaching and competency requirements, capacity building needs, Production of documents, etc*) **related to the integration of climate change into the curriculum** (*Secondary, College and University level*);
- **Gap filling and building the capacities of the educators** (teachers, lecturers, inspectors, etc) in fulfilling their mandate of implementing the climate change integrated curricula



Activities Common to All

- Production of the Draft Modules of Training for students, teachers and lecturers;
- Classroom type testing and iterative review and revision of the Modules
- Finalize the Modules and Curricula and Submit to appropriate approving Body and Launch the Programme

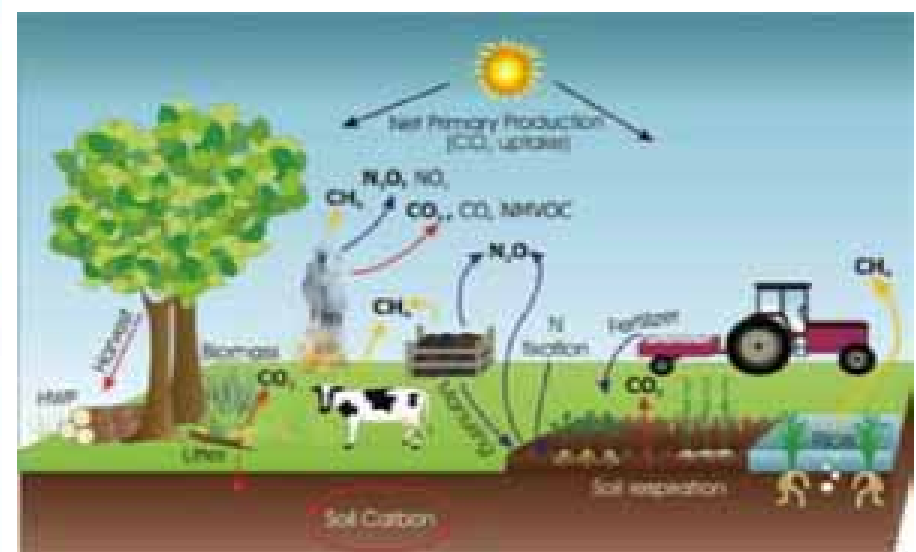
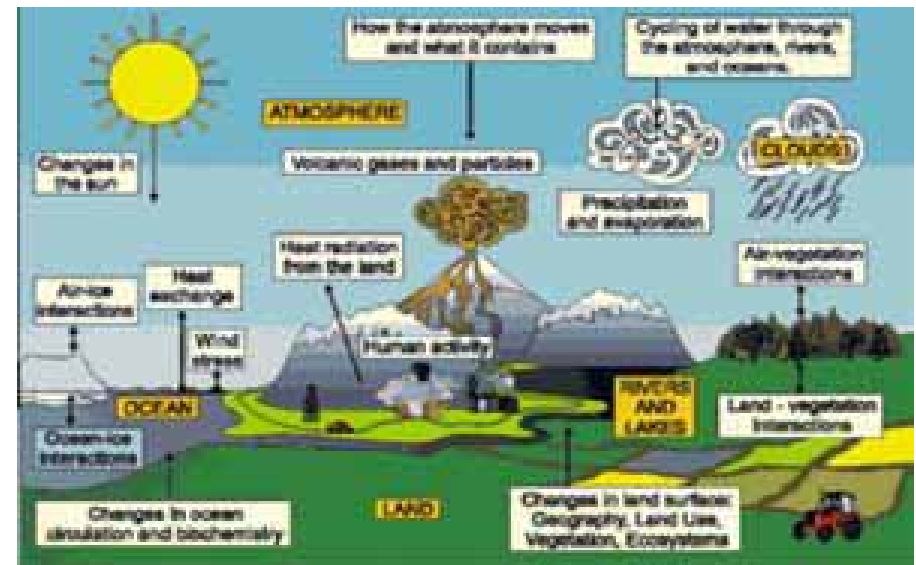
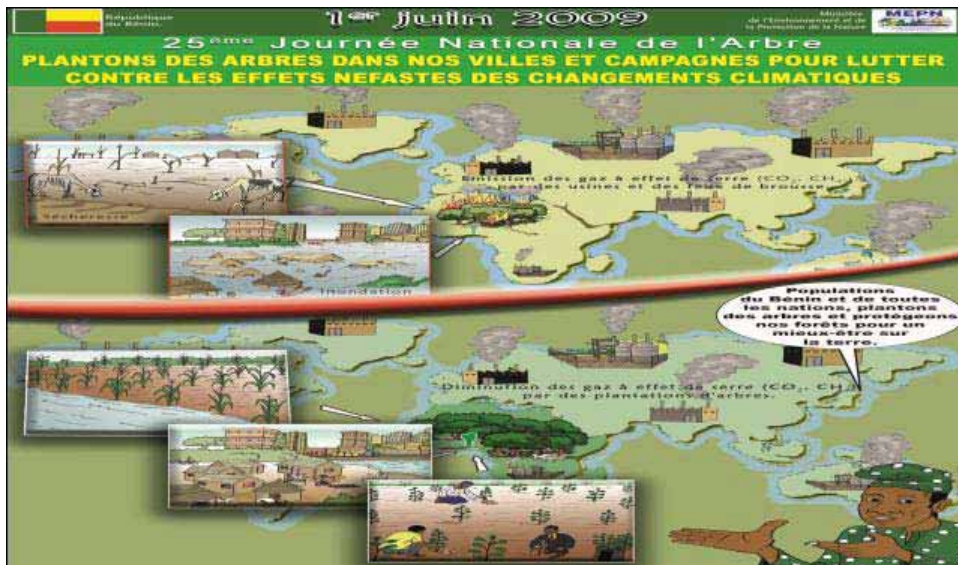


**Climate Change Integrated
Secondary School Curriculum
in Benin**

Climate Change Integrated Secondary School Curriculum in Benin

- The GARDIEN NGO and the Ministry of Education of Benin collaborated to update the Secondary School Curriculum of Benin by integrating climate change concerns into the Curriculum.
- A strategy for integration of climate change concerns into programs of the secondary school education is developed;
- Enhanced capacity through training and sensitization workshops for pupils, teachers and other stakeholders in the Education Sector;
- School teaching aids on climate change impacts and adaptation strategies are developed, tested and published;

Climate Change Integrated Secondary School Curriculum in Benin



Climate Change Integrated Secondary School Curriculum in Benin

- One Thousand and Fiver Hundred (1,500) students, Thirty (30) Teachers and Two Hundred and Fifty-Six (256) Teacher Trainers, Advisers and Inspectors have been trained on the Curriculum;
- About 500 CDs were disseminated.
- The Ministry of the Environment took used the issues in the document in the development of the “*National Strategies for Strengthening Human Resources, Learning and Skills Development to Foster Green Low-Carbon and Climate-Resilient Development*”.
- Benin’s experience on Curriculum Development was shared with Togo, Senegal and Niger through a national capacity building workshop toward Teaching Advisers at Cotonou.

**Climate Change Integrated
Secondary School Curriculum in
Seychelles**

**Rainwater Harvesting as Climate
Change Adaptation**

Achievement of the Seychelles Rainwater Harvesting

- Educated school children on the impact of climate change on water resources and on rainwater harvesting as a means of adapting to water problems caused by climate change;
- Installed rainwater harvesting equipment (water tanks and roof gutters) in 10 schools in the Seychelles.

CLIMATE CHANGE & RAIN WATER HARVESTING

Water sources in Seychelles

Water covers 3% of the Earth's surface. But most of it is salty. Only 3% is fresh. Of this fresh water, 75% is trapped in ice sheets, 24% is underground and only 1% is in rivers, lakes and soil.

The main islands of Seychelles receive about 2300 mm of rain every year of which 1.2% is collected for distribution. When rain falls it flows in rivers and streams. Firstly, waters collected through rivers and streams are stored in dams and reservoirs. It is then pumped into water treatment works where the raw water is chemically treated, filtered and disinfected. The treated water is then distributed to homes all over the country.

Another method of getting water is desalinated water. For sea water to become drinkable water, it needs to be treated by an expensive process called desalination to



One of our rivers on Mahé



Rainwater harvesting on Aldabra remove the salt and other impurities. Two other methods which are mainly used on the outer islands are bore holes or roof harvesting.



La Gogue dam when it is full

On Aldabra for example, all buildings have gutters which collect water and it is then transferred to tanks for consumption.

Roof Harvesting

One way of dealing with this global problem locally is through harvesting this free resource, rainwater. Some people refers to it as indigenous technology. Many of our grandparents collected rainwater in the past so that they can consume it later. But with development of



water treatment and distribution by PUC, rainwater harvesting have been neglected. Therefore, this precious natural resource is wasted away as run-offs and in drains.

When rainwater is harvested it brings about several benefits

- Cut down on water bills
- Reduced our dependency on water distributed by PUC
- Help conserve water sources
- Does not require energy input

Roof-harvesting at a local home



Water concerns in Seychelles

Water is becoming more scarce in Seychelles. This is due to many reasons; population growth; most rainfall is lost as runoff; increase urbanization; higher



La Gogue dam during dry season

level of consumption per person; and climate change. Too much consumers are depending on the same source: communities; industries; agriculture and the natural ecosystem. Assessment by PUC (2005) shows that a rise of 16, 175 kl a day for local demand. This competition is expected to intensify as climate change is expected to affect precipitation pattern and as a result natural water resources can be depleted. With more severe droughts during the dry season, evaporation is also expected to increase. Moreover, low-lying islands which depend on ground water will also be affected with sea-level rise. Underground water would become saline due to intrusion of sea water caused by sea-level rise.

We cannot wait for industrialized countries to cut down on their green house emission, we need to look for local solutions to adapt with the ex-



A common scene during the dry season

pected problems. There are a few homes in Seychelles which harvest rainwater for their domestic consumption, especially in their gardens. If more homes collect rainwater, more water could be saved and used during the dry season.

Recommendations

However, it is very important that water tanks are well covered to avoid the breeding of mosquitoes. It is also recommended that a funnel is put at the entrance of the tank so as to filter or reduce unwanted materials into the tanks, such as dead leaves which have fallen on the roof.



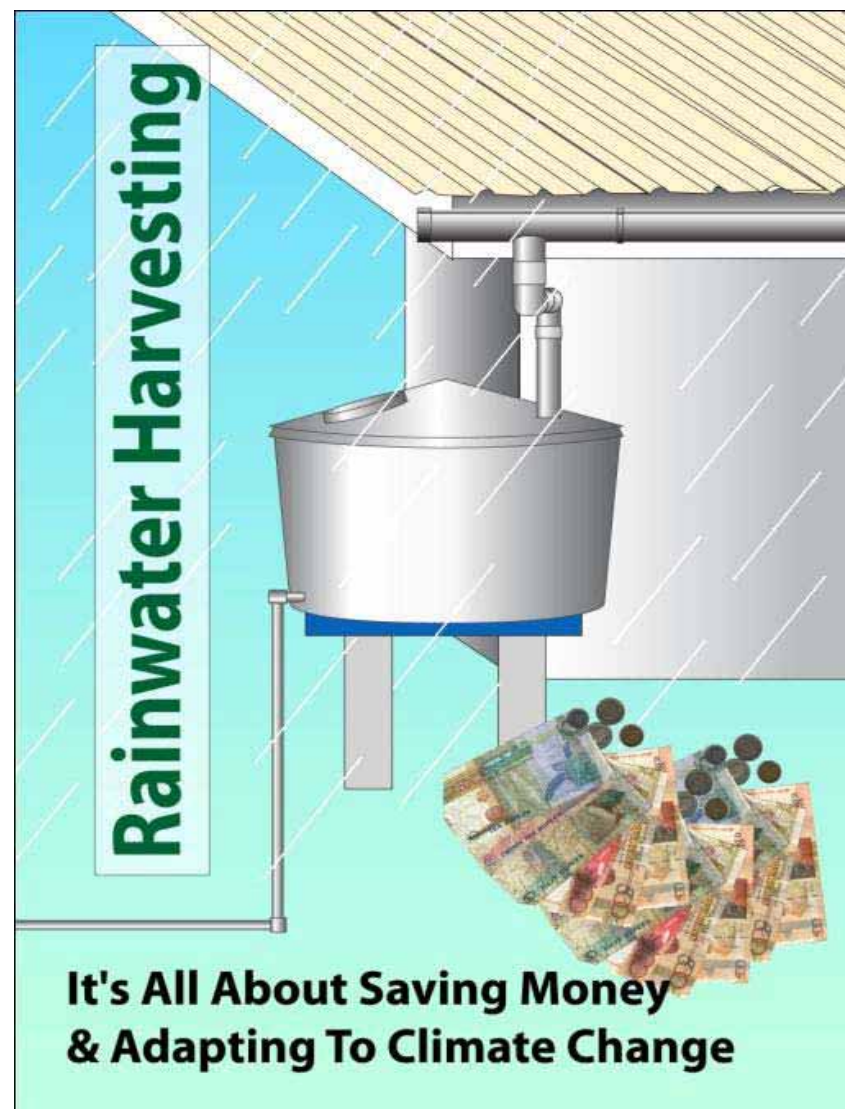

School Children Active in Art Works on Rainwater Harvesting



Achievement of the Seychelles

Rainwater Harvesting

- Shared the water harvesting experiences of the schools with other organizations;
- Harvested rain water so as to meet the needs of selected schools and to reduce the cost of water bills;
- Replication of Rainwater Harvesting in Schools and Communities



Remarkable reduction in water bill as of January 2011 in one state school

PUBLIC UTILITIES CORPORATION PUBLIC UTILITIES CORPORATION

P.O. BOX 174, VICTORIA, SEYCHELLES,
TEL : 678 000

WATER & SEWERAGE

Meter Reader Id: 0004		Month: OCT-10		
Cust No	Inv No	Date	Time	Trf
0041880-6	45122	18/10/10	09:59	MG
Mtr Location: GRAND ANSE / MAHE				
MINISTRY OF EDUCATION				
X X X PRIMARY				
SCHOOL				

Meter Reading			
Meter No.	Previous	Present	Units
R9178609	727	1379	652
Charge This Month			
	Units	Rate	Total
WATER	100	16.80	1680.00
	552	21.60	11923.20
METER RENTAL			10.00
SURCHARGE @ 2%			697.25
ENV.LEVY			25.00

October 2010- SR14 335.45

P.O. BOX 174, VICTORIA, SEYCHELLES,
TEL : 678 000

WATER & SEWERAGE

Meter Reader Id: 0016		Month: JAN-11		
Cust No	Inv No	Date	Time	Trf
0041880-6	53124	18/01/11	09:42	MG
Mtr Location: GRAND ANSE / MAHE				
MINISTRY OF EDUCATION				
X X X PRIMARY				
SCHOOL, MAHE				

Meter Reading			
Meter No.	Previous	Present	Units
89178609	1869	2015	146
Charge This Month			
	Units	Rate	Total
WATER	100	16.80	1680.00
	46	21.60	993.60
METER RENTAL			10.00
SURCHARGE @ 2%			203.62
ENV.LEVY			25.00

January 2011- SR2 912.27

Impacts

- About 2000 beneficiaries especially children, the most vulnerable group to climate change
- Schools are making savings in the water bills. Which are used for other learning resources to promote learning
- The water is being used for greening the school programme and school garden, maintaining the natural biodiversity around the school.
- The Government has legislated a bill into law and is currently investing around US \$ 20, 000 to replicate RWH in 5 new schools.
- Ministry of Education has also invested in the installation of the system in the new school being built.

Lessons Learnt in Seychelles

- Teachers, students and other educators learnt that taking a project-approach to learning, especially on global problematic issues, can help in diversifying their teaching approaches, and provide learners with more practical and hands-on experience and make teaching and learning more interesting.
- Realization of benefits additional to climate change adaptation such as the amount of money saved helped people to get actively involved and helped Managers of School Budgets to make savings and reallocate funds to other activities

Follow-up and Sustainability in Seychelles

- Rainwater Harvesting is already incorporated in the National Climate Change Strategy and the Environment Management Plan of Seychelles (EMPS);
- The Environment Trust Fund (ETF) sponsored additional 5 new schools in 2011 and the coordinator will continue to seek funding both locally and internationally to do installation in other schools;
- There is overwhelming demand from other educational institutions, and with growing interest from both local, regional and international organisations, the project will continue to be used both locally, regionally and internationally as a means of an adaptation approach to Climate Change.

Follow-up and Sustainability in Seychelles

- The Department of Environment and PUC is using the project as a means to sensitise and educate the general public on climate change.;
- An NGO, Sustainability for Seychelles (S4S) is using the project to promote rainwater harvesting at community level and to replicate it on La-Digue Island using the he GEF Small Grants;
- The Seychelles Institute of Technology and a private school are also replicating Rainwater Harvesting;
- The Seychelles UNDP Country Office is to replicate Rain Water Harvesting in the Anse-Royale district;
- The University of Seychelles also proposes to install Rainwater Harvesting System at the university campus.

Message of appreciation and endorsement from President James Alix Michel of the Republic of Seychelles

"This small project which started in schools and was eventually extended to communities proves how education for sustainable development can meaningfully contribute to climate change mitigation and adaptation.

The school rainwater harvesting project has provided us with the opportunity to better equip our people to apprehend the diverse threats posed by climate change and to make preparations to adapt to it. It has provided our children tomorrow's leaders to act as young researchers and agents of change and to identify themselves as part of the global problems and be part of the solution.

This CC DARE project is a worthwhile project which I fully endorsed. It is the way forward. If we all do our part in harvesting rainwater and are serious about it, we could all contribute to alleviating the serious water shortages we face in the dry season.

*I thank our partners especially the Danish government which through the United Nations Environment programme and CC DARE has committed itself to supporting sustainable practices to help developing countries adapt to climate change" **President James Alix Michel, President of the Republic of Seychelles.***

Here are the links for the video with the president's message

http://www.unep.org/NewsCentre/videos/CCDARE/H_E_James_Alix_Michel-Rainwater_Harvesting_Seychelles.wmv

**THANK YOU
FOR
YOUR
ATTENTION**