

CARING FOR CARIBBEAN BEACHES SANDWATCH PROJECT 2001- 2003

**SECOND REGIONAL SANDWATCH WORKSHOP
PORTSMOUTH, DOMINICA, 7-9TH JULY 2003**

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Executive Summary

The Sandwatch project, initiated in 1998, seeks to reduce the level of pollution in the Caribbean Sea; to train school students in the scientific observation and measurement of beaches; and to assist school students, with the help of their local communities, to apply the scientific data collected to implement projects to enhance their beaches.

Supported by the United Nations Educational, Scientific and Cultural Organization (UNESCO) through the Caribbean Sea Project, the Associated Schools Project Net, and the platform for Environment and Development in Coastal Regions and Small Islands, the project started with a training workshop in St. Lucia in 2001. During this workshop, teachers from 18 countries met to learn about the methods and discuss plans for the first phase of the project. During the next two years, teachers and students worked to scientifically monitor changes in beach characteristics and use patterns.

Students and teachers from 12 Caribbean countries met during the Second Regional Sandwatch Workshop in Dominica in July 2003 to present their findings and plan activities for the second phase of the project. The results of the students monitoring activities, which were of a very high quality, are described in this report, and were judged by education representatives from Cook Islands, Palau and Seychelles, who participated in the workshop as part of the inter-regional activities of a related UNESCO project, Small Islands Voice.

An assessment of phase 1 recognised the many benefits of the Sandwatch project, including the renewed interest in science and its application, and the potential for Sandwatch activities to be integrated into many different subjects across the curriculum, from mathematics to creative arts. However, in order to successfully implement phase 2 of the project - the execution of school and community-based beach projects - there is a need for additional support from schools, communities, Ministries of Education, UNESCO National Commissions and the UNESCO regional office. Proposals for phase 2 projects were discussed and an action plan prepared. The inter-regional participants from the Indian Ocean and Pacific regions also prepared plans to start Sandwatch activities in their countries.

Participants also learnt about the Small Islands Voice project, an initiative that seeks to bring together islanders in the Caribbean, Indian Ocean and Pacific regions in a process of dialogue and activities for sustainable development. During workshop discussions, the students identified teenage pregnancy and drug abuse as the main issues of concern; while adults prioritised a set of social issues including drug abuse, crime, violence (especially gang violence) and unemployment as their main concerns.

Overall the workshop concluded that with improved coordination and communication among the countries and the organising bodies, and some increased financial input, the potential of the Sandwatch project is enormous –

to provide for inter-cultural exchange and peace building initiatives; to increase interest in science among students; and to reduce pollution and safeguard beach resources.

CHAPTER 1 INTRODUCTION

'How can we resolve environment and development issues in a peaceable and lasting manner so that we do not have to face the same dilemmas year after year?'

This was the question posed by Mr. Felix Gregoire, Permanent Secretary in Dominica's Ministry of Education, Youth and Sports, to the participants of the Second Regional Sandwatch workshop in July 2003. And indeed it is a question that faces all the 16 countries represented at the workshop on a daily basis as they seek to balance the demands made by development with the need to conserve the environment. The particular matter to which Mr. Gregoire referred related to the establishment of a whaling sanctuary in the South Pacific, but the listening participants face issues much closer to home, ranging from pollution of their beaches and coastal waters by solid waste and sewage to the demands posed by tourism developers for the prime undeveloped beach sites, often a favourite haunt for residents.

These issues are among those covered by the Sandwatch project, an initiative which began in 1998 and seeks to:

- reduce the level of pollution in the Caribbean Sea
- train school students in the scientific observation and measurement of beaches
- assist school students, with the help of their local communities, to apply the scientific data collected to the management of the region's beaches

As Mr. Julian Brewster, Mayor of Portsmouth, Dominica, said at the workshop opening in July 2003:

'Collectively each of us must do what is necessary to keep the Caribbean Sea free of pollution and influence our governments in adopting effective policies.'

The idea for the Sandwatch project emerged during an Environmental Education Workshop held in Tobago in July 1998, when teachers and students identified the region's beaches as requiring special care, whilst also providing a wonderful learning environment for youth. The project has been developed and supported by several initiatives and organizations:

- Caribbean Sea Project, an initiative of the Associated Schools Project Net, which focuses on the marine environment, sustainable human development and inter-cultural awareness. It seeks to encourage cooperation among Caribbean Basin territories with a view to enlisting young people, their parents and communities, in the protection and preservation of the Caribbean Sea, including the waterways and

wetlands linked to it, and the strengthening of Caribbean identity.

- Associated Schools Project Net (ASPnet) of the United Nations Educational, Scientific and Cultural Organization (UNESCO), which involves more than 7,500 member schools in more than 170 countries. ASPnet seeks to build peace through education and to establish a climate of mutual respect and non-violence in the classroom, the school, the family and the community.
- UNESCO's platform for Environment and Development in Coastal Regions and Small Islands (CSI), which seeks to develop wise practices for the management of conflicts over resources and values; and in particular one of its field projects named 'Managing beaches and planning for coastline change, Caribbean Islands' (COSALC).

Sandwatch project: a short history

Inception

The project was developed during workshops and planning sessions over the period 1998-1999. The idea for the name 'Sandwatch' came from the young people taking part in the Environmental Education Workshop, held in Tobago in 1998. A project document for the Sandwatch project was presented to the meeting of coordinators of the Caribbean Sea Project, held in St. Vincent and the Grenadines in May 1999, where it was endorsed. In this project document, the Sandwatch initiative was divided into two phases: a first phase of approximately 18 months during which students monitor changes in their beaches and analyse the data; followed by a second phase when the students, together with their communities, apply the results of the scientific monitoring to design and implement small projects to improve and enhance their beaches.

First Regional Sandwatch Workshop, St. Lucia, May 2001

In May 2001, the project was officially launched in St. Lucia, when teachers from the participating countries met to learn about the methods to be used in Sandwatch and to discuss plans for the first phase. The following 18 countries took part in the First Regional Sandwatch Workshop in St. Lucia, 31st May – 2nd June 2001:

Antigua and Barbuda
Aruba
Bahamas
Barbados
Belize
British Virgin Islands
Costa Rica
Cuba
Dominica
Dominican Republic

Grenada
Guyana
Jamaica
Netherlands Antilles
St. Kitts and Nevis
St. Lucia
St. Vincent and the Grenadines
Trinidad and Tobago

Annex I contains a list of the country representatives who took part in this First Regional Sandwatch Workshop.

Teachers from the 18 Caribbean territories were trained in simple beach monitoring techniques and provided with manuals and equipment sufficient for three schools in each country. The teachers agreed to act as national Sandwatch coordinators and involve other schools in their countries.

During the workshop teachers were trained in the following activities:

- beach observations
- measurement of beach debris
- water quality monitoring
- monitoring of human activities on the beach
- physical beach changes (erosion/accretion)
- sand characteristics
- wave measurements
- current measurements
- turtle nesting activity
- observations of animals and plants

The training included field measurements as well as data analysis procedures. Activities ranged from simpler activities for primary school students to more complex field methods and data analysis for secondary school students. While the workshop sessions included a brief introduction to all the above measurements, the teachers were advised to select the monitoring activities in which they were most interested and which were most relevant to their particular beaches. Thus a teacher and his/her particular class might prefer to select just one or two activities from the above list on which to focus.

On return to their countries, the national coordinators met with teachers from other schools, distributed the equipment and shared the information provided during the First Regional Sandwatch Workshop. They then started working with their students to monitor beaches near their schools, and to collect and analyse the data.

Second Regional Sandwatch Workshop, Dominica, July 2003

This workshop for students and teachers was held at the Portsmouth Cruise Ship Berth, Portsmouth, Dominica from 7-9th July 2003. Students presented

the results of their beach monitoring work through oral presentations and exhibits. The workshop also provided an opportunity to assess the first phase of the project and begin planning the second phase. The goals of the workshop were to:

- exhibit, present and judge the results from the beach monitoring activities undertaken during Phase 1 of the Sandwatch project
- prepare plans for Phase 2 of the Sandwatch project, 'Implementation of beach enhancement projects'
- evaluate the Sandwatch project to date, and develop a long-term strategy for developing Sandwatch activities country-wide
- provide opportunities and activities for students and teachers to interact with each other and learn about Dominica: its people, culture, environment and especially its beaches
- introduce the Small Islands Voice initiative to the Wider Caribbean region

The workshop programme is included in Annex II. Student and teacher representatives attended from the following countries:

Bahamas
Barbados
British Virgin Islands
Cuba
Dominica
Dominican Republic
Grenada
Guyana
St. Kitts and Nevis
St. Lucia
St. Vincent and the Grenadines
Trinidad and Tobago

Two educators attended from the Netherlands Antilles (Curaço). A complete list of the participants is contained in Annex III. Representatives from Aruba, Antigua and Barbuda, Belize, Costa Rica and Jamaica were unable to attend for different reasons including illness and travel difficulties.

The Cook Islands and Palau in the Pacific, and Seychelles in the Indian Ocean, were also represented at the workshop. This was arranged through cooperation with another UNESCO project 'Small Islands Voice,' an initiative which seeks to bring together islanders in the Caribbean, Indian Ocean and Pacific regions in a process of dialogue and activities for sustainable development.

CHAPTER 2 SANDWATCH PROJECT RESULTS 2001-2003

Using drama and creative arts

Up from the deep
Dramatic monologue by VernetteOllivierre

**Written for presentation by Racquel Phillips and Michael Penniston
of the Bequia Community High School, St. Vincent and the Grenadines,
at the Second Regional Sandwatch Project Workshop, Dominica 7-9
July 2003**

Up from the deep I come, I rise in protest
look at me, I was here at the
beginning of time, that was before time
created at

the firmament
above and below

Keeper of the deep
holder of myriad secrets
provider of needs
I've kept the faith
and now, your actions
will decide my fate

And so I've come up
up, up, up
from the deep
from your shores
from the river mouths

To confront you
Caution you
Plead with you
Pardon me if I am no longer
as beautiful as before
But I am adorned with the artefacts
of your generosity

Am I still beautiful to you,
Now that you have found others to love
For now you dump the discarded
treasures of your lust fast
deep in my heart
and sprinkle your litter crumbs
at the edges of my shoals
Do I deserve this?
I...keeper of the deep
holder of myriad secrets
sustainer, provider of your needs
I have kept the faith
I don't deserve this fate

I remember how I cushioned
your budding islands
in my warmth
and nourished your natives
with the richness of my store

Do I deserve this?
I...keeper of the deep
holder of myriad secrets
sustainer, provider of your needs
I have kept the faith
I don't deserve this fate

Can't we work together?
It is time we work together
in harmony
in rhythm of my water
 lapping your shores
You need to protect me
As I have sustained you

You need to promote conservation
 And cut down on pollution
We need to develop cooperation
In the preservation of marine life
 For all generations

Look at me,
 Keeper of the deep
 holder of myriad secrets
 sustainer....provider of needs
I am keeping the faith
Now by your actions reverse my fate

Love me as I love you
 Conserve me
 Preserve me
 Sandwatch me
In all generations to come

This original dramatic piece was written by Ms. Vernette Ollivierre of St. Vincent and the Grenadines. It was performed by Ms. Racquel Phillips and Mr. Michael Peniston of the Bequia Community High School at the closing ceremony of the Second Regional Sandwatch Workshop in Dominica.

As Mr. Stephenson Hyacinth, Chief Education Officer, Ministry for Education, Sports and Youth Affairs, noted in the closing ceremony:

‘Drama and creative arts are not only an art form, but a method of teaching, and through this medium the students have spoken very clearly.’

The closing ceremony also saw two other dramatic pieces, written and acted by the students taking part in the workshop, and portraying two issues about which they felt strongly: teenage pregnancy and drug abuse.

Sandwatch beach monitoring presentations

The twelve Caribbean countries represented (not including the Netherlands Antilles) all prepared displays, and the student representatives gave a 10-minute presentation on their beach monitoring activities. All the presentations and exhibits were of a very high quality.

The three inter-regional participants from Cook Islands, Palau and Seychelles played a key role in the workshop by judging the oral and visual presentations from the Caribbean participating countries according to a set of pre-determined criteria, see Annex IV. Judging was conducted in two categories: primary schools (7-11 years) and secondary schools (12-18 years).

At the workshop only one school from each country was represented, with the exception of the host country, Dominica. However in most of the Caribbean countries several schools have been involved in phase 1 of the Sandwatch project, these are listed in Annex V.

Primary school presentations

Bahamas

One school has been involved in Sandwatch activities in the Bahamas, the Hope Town Primary School on Abaco. The presentation on Sandwatch monitoring was given by Ms. Katie Joseph. She described how Hurricane Floyd had nearly destroyed the island of Abaco in 1999, although the island and its communities had recovered in the following years.

Her school had measured many different aspects of the island’s beaches including erosion, waves, currents, water quality and ways in which the beaches were used. They had also done some work on animals that use the beach such as turtles and whales and she described a recent whale beaching incident. They had also monitored beach debris and the students had produced an interesting ‘beach pizza’ made of debris found on the beach. The presentation was concluded with the distribution of some maps and promotional material relating to the Bahamas.

Dominica

Four primary schools were involved in the Sandwatch project in Dominica: Dublanc Primary School, Salisbury Primary School, Colibistrie Primary School

and Colihaut Primary School. All had been fully involved in monitoring beaches although unfortunately the Colihaut Primary School had been forced to stop monitoring activities when the beach they were working on was protected with a boulder revetment which covered up the beach area.

The students from Dublanc Primary School: Ms. Eudorra Bertrand, Ms. Diedre Fountaine and Ms. Crystal Hilton described the characteristics of their beach and showed some of the poems, stories and pictures the class had prepared. They had identified garbage and debris as the main problem at their beach. Then they conducted an interview survey to find out how people viewed the beach and they described how some interviewees had responded by swearing at them. Finally they prepared placards and held a march round the village to tell people to listen and get it right and keep the beach clean. After their march people from the community went to the beach and cleaned it. As a follow-up activity the students wrote to the Village Council. They also demonstrated how they had made decorative bottles and pencil holders using the materials discarded on the beach.

Mr. Quincy Casimir, Ms. Clesha Larocque and Mr. Kelton Vidal of Salisbury Primary Schools described their observations and the results of their beach debris measurements. According to an interview survey they conducted, 90% of the respondents felt the beach was clean and that most of the debris was of natural origins. They used bar graphs to illustrate this point. They suggested the beach could be improved with toilets, signs and benches.

Trinidad and Tobago

The Point Fortin Secondary Schools had initially started Sandwatch activities, but for several reasons these had been abandoned. As a result of contact and collaboration with the Bequia Community High School in St. Vincent and the Grenadines, Mr. Saleem Dane Ali described how the Mayaro Government Primary School had recently become involved in the Sandwatch project. This school had previously carried out beach clean-up activities and environmental field trips. They had selected Plaisance Beach for monitoring, although activities were only just beginning. This was the only school in Trinidad and Tobago involved in the Sandwatch project.

Secondary school presentations

Barbados

Training in Sandwatch monitoring activities had been provided to four schools in Barbados: Coleridge and Parry School, Garrison Secondary School, Ellerslie Secondary School and St. James Secondary School. However, only in the first two schools was monitoring actually conducted, with the Coleridge and Parry School concentrating on the physical changes in the beach and the processes shaping them, and the Garrison Secondary School monitoring beach debris and turtles.

Mr. Anderson Whittier of the Environmental Club of the Coleridge and Parry School described how contact had been made with the Government of Barbados' Coastal Zone Management Unit who had provided some additional training. Monitoring of the waves, currents and beach erosion, as well as water quality in the salt pond started in January 2002. The project had won a silver award at the 2002 Regional Science Fair. In addition, the results of the monitoring had been presented to the public on World Water Day and an exhibition had been displayed. A beach clean-up had also been conducted. The project had been presented at the school's annual speech day.

British Virgin Islands

Schools in the British Virgin Islands have not yet started monitoring activities, however, the British Virgin Islands High School was keen to start. Ms Shaniqua Henley presented an overview of the problems facing some of the beaches in the British Virgin Islands. She described how a water quality problem at the popular Cane Garden Bay had been solved with a sewage treatment plant and how the residents of the area had conducted an effective clean-up campaign. She also referred to the erosion at Cappaons Bay, a popular surfing beach where littering was a problem especially at full moon parties. Beach sand mining is also a problem in Tortola, especially at Josiahs Bay. The British Virgin Islands are planning to start an adopt-a-beach project soon.

Cuba

The following schools were fully involved in the monitoring activities: Instituto Preuniversitario Vocacional de Ciencias Exactas 'Ernesto Guevara' Santa Clara, Instituto Preuniversitario Vocacional de Ciencias Exactas 'Frederico Engles' Pinar del Rio, Escuela Primeria 'Guerillero Heroica' Ciudad Habana, Escuela de Arte, Escuela Secundario Basica.

Ms. Lisett Pérez Quintero said she represented 933 students and described how the school at Santa Clara chose two beaches for monitoring – a virgin beach and a more heavily used beach with pollution problems. They monitored the beach characteristics and changes as well as the use of the beach. Visits were made to environmental agencies and the Santa Clara community were involved in a regular series of cleaning and replanting exercises. Younger students took part in raising the level of awareness about the beach problems. A radio programme, newspaper articles and a newsletter 'Nature and I' were prepared. Now the community are helping with the work on a regular basis and it had been agreed by all concerned that the level of pollution had been decreased.

They are now trying to extend the programme to other beaches with pollution problems and to extend the project to other Cuban provinces. The Sandwatch monitoring activities are being incorporated into different subjects: biology, mathematics, geography.

Dominica

The Portsmouth Secondary School had recently become involved in the Sandwatch project. Ms. Bernella Breedy, Ms. Jerelle Joseph and Ms. Gail Sharplis described how they had monitored erosion, waves, tide and beach debris at Glanvillia Beach over a seven-day period. They had found that plastics were the main component of the debris. They had written poems about the beach and prepared a video showing their activities.

Dominican Republic

Twelve schools had been involved in the Sandwatch monitoring activities:

Liceo de Educación Media 'Pedernales', Pedernales

Centro Educativo 'Las Américas', Santo Domingo

Liceo de Educación Media 'Ernestina Tejada', Villa Fundación

Liceo de Educación Media 'Francisco Gregorio Billini', Bani

Liceo de Educación Media 'Gastón F. Deligne', San Pedro de Macorís

Colegio 'San Pedro Apóstol', San Pedro de Macorís

Liceo de Educación Media 'Sor Ana Nolan' Consulo, San Pedro de Macorís

Colegio Santa Rosa de Lima, Santo Domingo

Liceo de Educación Media 'Aristedes García Mella', La Romana

Colegio Santa Teresita, Santo Domingo

Liceo de Educación Media 'San Rafael' San Rafael del Yuma

Liceo de Educación Media 'John F. Kennedy' Boca de Yuma

Mr. Juan Mejia Reyes described how waves, currents, beach erosion, and sand composition had been measured on a regular basis at three beaches. Their work had show different types of pollution problems including an increase in silt. The river and the fishing communities were a source of pollution. They had talked to some of the communities about the pollution problem and had also had articles published in the newspaper.

Grenada

The Anglican High School had been working on the Sandwatch project and Ms. Jodie-Anne Johnson described how beach erosion, sand characteristics, water quality, waves and longshore drift had been measured at Grand Anse Beach. They had noted that algae had covered the beach at times. They had met with the Ministry of Health and the Board of Tourism. The students were planning to begin an anti-pollution campaign. Future activities would include a questionnaire survey of beach users, and a seagrape tree planting activity – scheduled for mid-August 2003.

Guyana

Three schools in Guyana had been involved in the Sandwatch project: St. Rose's High School who focused on beach monitoring; and Bartica Government Secondary School, who together with Two Mile Primary School worked on river monitoring.

Ms. Angela Lewis presented the monitoring results and described how rubbish on the beach was a major problem. They had conducted several clean-ups but the rubbish continued to be a problem. They had put up posters, published newspaper articles and involved the community but the continuing reappearance of the rubbish was somewhat discouraging. The Sandwatch monitoring activities had been integrated into the school curriculum.

Netherlands Antilles

Sandwatch monitoring activities in the Netherlands activities have not yet started. Ms. Michelle da Costa Gomez and Mr. Leendert Pors from Curacao described the island of Curaçao and particularly focused on how land use zoning was very effective. Their institution, the Carmabi Foundation, focuses on research, education and conservation activities.

St. Kitts and Nevis

Two schools in St. Kitts are involved in the Sandwatch monitoring activities: Sandy Point High School and Irish Town Primary School. While training was provided to the Charlestown Secondary School in Nevis, monitoring activities have not yet started.

Mr. Randel Thompson described how several beaches had been selected for monitoring, including Pump Bay, Frigate Bay and the Basseterre Bayfront. Monitoring had included erosion, waves, currents, tides, water quality, debris and beach use. A video had been prepared showing the characteristics of South Frigate Bay, and this was shown as part of the presentation. Beach debris was a serious problem. Paintings of the beach were also displayed.

St. Lucia

Five schools had been involved in the Sandwatch activities in St. Lucia: St. Josephs Convent Secondary School, Micoud Secondary School, Glendon Mason Secondary School, Castries Comprehensive School, Soufriere Comprehensive School. But beach monitoring had only been conducted at the first three schools.

Ms. Zayne Fevrier and Ms Whitney Henry presented the results from the monitoring of Vigie Beach by the Environmental Club of the St. Josephs Convent Secondary School. They had measured erosion, waves, currents, sand characteristics and beach debris. Their work showed that erosion was the main problem and that there were some quite significant seasonal variations in the size of the beach at different locations.

St. Vincent and the Grenadines

Four schools had been involved in the Sandwatch project: Bequia Community High School, 7th Day Adventist Secondary School, Union Island Secondary

School, Barroulie Secondary School; although monitoring had not yet started in the latter two schools.

Ms. Racquel Phillips and Mr. Michael Penniston described how they had started monitoring the erosion and accretion at ten beaches in Bequia since 2000. They had measured beach profiles and analysed the data; they had also trained students from other Grenadine islands in these activities. They had conducted beach clean-ups and had done an in-depth study of Tobago Marine Park including currents, waves, erosion and debris analysis. Their work here showed that erosion was a significant problem, particularly the seasonal changes. They planned in the future to do an in-depth study of Friendship Bay.

They also described a glass project they were conducting wherein they collected and reused broken glass. Parents and students would collect up their empty bottles and bring them to the school for breaking by the students. The broken glass was then used to make seats and benches which were placed in the school and around the community.

Judging of the presentations

All the presentations were of a very high quality and demonstrated the very hard work that had been done by the students, aided by their teachers.

The winning school in the primary school section was Dublanc Primary School, Dominica; and in the secondary school section, the winner was Instituto Preuniversitario Vocacional de Ciencias Exactas 'Ernesto Guevara', Cuba.

During the closing ceremony every country received certificates and one science kit, and the two winning schools received two science kits.

Inter-regional presentations

Cook Islands, Pacific Ocean

Ms. Natalie Faitala told the participants that in the Cook Islands there are volcanic islands and atolls, however, there is very limited land area. Some of the islands are very small although they may enclose a large lagoon. Beach-based tourism is the main industry accounting for 60% of the gross domestic product. Beaches are important in the Cook Islands for tourists and residents. A non-governmental organization, the Rarotonga Environmental Awareness Programme, has started an adopt-a-beach programme, whereby schools, youth and church groups take care of a particular beach. They also have a programme of environmental rangers, which consists of young people 6-12 years old. Cook Islands participate in the international coastal clean-up which takes place in September every year and they try to get everyone involved. Youth are at the forefront in looking after beaches, and Cook Islands hopes to get involved in the Sandwatch project.

Palau, Pacific Ocean

Ms. Anuradha Gupta gave a short overview of Palau. She described how family and cultural links are very important and that women traditionally have a taro patch while the men go fishing. The country faces developmental pressure from inside and outside. The goal is to have 140,000 tourists a year, and a new road is being built around Babeldaob which it is hoped will encourage development. Beaches are not used intensively in Palau, so litter is not a major problem, although development pressure is growing. Two islands in the south are experiencing serious erosion. As yet beaches are not monitored, although Palau hopes to start Sandwatch activities.

Seychelles, Indian Ocean

Seychelles consists of an archipelago of granite islands and atolls lying in the Indian Ocean. While tourism is very important to the country's economy, Ms Jeanette Larue described how the country is very active in the environment arena. There is an Environmental Education Committee with representatives of all ministries and some non-governmental organizations. All the schools have environmental clubs and are actively involved in environmental and conservation activities. Seychelles also plans to start Sandwatch activities in the near future.

Benefiting from cultural exchanges

Inter-cultural awareness is an important part of the Caribbean Sea Project, and there was ample opportunity for exchanges between participants from different countries, on an informal and formal basis during the three days of the workshop. This workshop was unique in that it provided an opportunity for inter-regional exchanges with participants from the Pacific Ocean and the Indian Ocean regions. This was especially symbolic and moving during the closing ceremony when the participants displayed their countries' flags and described the symbolism of their flags.

There was also the opportunity for overseas participants to learn about the host country Dominica. As the Major of Portsmouth, Mr. Julian Brewster, said during the opening ceremony:

'People in Dominica are presently under considerable pressure as they adapt to new, stringent economic policies, but still people manage to smile.'

There was ample opportunity to see those 'smiles' as participants visited Portsmouth, and the Cabrits National Park. Residents of Portsmouth also observed the workshop participants planting some West Indian almond trees on the Glanvillia beach front on the first day of the workshop. The Forestry, Wildlife and Parks Division provided the trees and showed the participants correct planting procedures, and demonstrated how this particular species was especially suitable for beaches since it was fairly fast growing, and once mature

the trees could withstand hurricane waves and winds.

A whale watching boat trip provided participants with the opportunity to see Dominica from the sea and the trip was very enjoyable although unfortunately the whales were somewhat elusive that day. Dominican cultural displays were an important and colourful part of the opening and closing ceremonies.

CHAPTER 3 SANDWATCH PROJECT: ASSESSMENT AND FUTURE PLANNING

During the workshop there were several group discussions sessions where students and teachers focused on the planning and execution of the Sandwatch project and how to proceed with the next phase.

Assessment of phase 1 of the Sandwatch project

While the students were working on Small Islands Voice drama presentations (described in Chapter 4) the teachers divided into three small groups to evaluate the Sandwatch project to date. A series of guidelines were prepared for the group discussions, see Annex VI. The results from the individual groups have been integrated below.

The advantages of the Sandwatch project were:

- the beach provides a learning environment that cannot be duplicated and students enjoy working outside the classroom
- students acquire scientific knowledge by applying specific data collection and analysis methods. The activities in the Sandwatch project have the potential to be integrated over the entire curriculum and thus improve the learning experience for students. Some of the students taking part in standard examinations organised by the Caribbean Examinations Centre (CXC) have used their Sandwatch project activities as part of their school-based assessment programme which contributes to their 5th year grade.
- though the Sandwatch project students develop a personal relationship with the environment and their increased awareness means they no longer take the beach for granted and they understand the importance of reducing pollution
- the project has helped to improve student/teacher relationships
- the students and teachers feel pride in being part of a UNESCO project
- the project has provided for the training and involvement of other teachers – those beginning can easily learn from those already involved in the project
- through regional workshops such as this one, students learn about other countries

The disadvantages of the Sandwatch project were:

- a lack of equipment and finances to run the project properly and insufficient time to raise funds
- there were some problems with the management of students in the field and sometimes students had improper attire
- the project resulted in an additional burden and extra work for the teachers
- there was no support or back-up system, so that when a teacher was moved or replaced activities stopped
- some Ministries of Education are very much focused on examinations and do not see the Sandwatch project as being good for test scores

The groups were also asked to identify the major problems encountered. The main problem identified was a lack of support and involvement from school principals and Ministries of Education. Some countries also identified a serious lack of communication of vital information from their National Commissions for UNESCO. Countries also mentioned inadequate or no financing was available for expenses such as transport to the beach, provision of snacks and drinks, and disposable gloves. Another problem related to people's expectations of UNESCO, in that as soon as people heard the project was supported by UNESCO they assumed that plenty of funding was available and there was no need for them to contribute. The need for providing continual support for projects such as Sandwatch was emphasised.

When asked whether the project should move into a phase 2, the implementation of community-based beach projects, the overall consensus was in favour of phase 2. However, this would require considerable external support. Phase 2 was also seen as being important in tying education to the real world. The phase 1 monitoring had shown the students some of the negative problems associated with their beaches, and it was now time to implement positive actions.

In order to successfully implement phase 2 of the Sandwatch project, support would be necessary from various sources:

- schools: administrative support from the principals and back-up support from other teachers
- community: acceptance of the project by parents, assistance with activities from the communities and non-governmental organizations, and financial support from the private sector
- National Commissions for UNESCO: liaison between the schools and Ministry of Education, financial and administrative support, access to their libraries and computers, assistance with holding national Sandwatch workshops for all the schools involved, a paid Sandwatch representative in each country to fully coordinate the project would be helpful
- UNESCO Regional Office: financial support, overall coordination, regular visits to provide a physical presence in the countries, monitoring of progress of the project, regional workshops

All the participants agreed on the usefulness of integrating the Sandwatch project activities across the curriculum. Some countries such as Cuba and Guyana were already doing this in the schools involved in the project. There was agreement that Sandwatch project activities could be integrated across the curriculum into social studies, sciences, mathematics, information technology, languages, and arts.

Widening the scope of Sandwatch to include more than a few selected schools in each country represents a considerable challenge. National workshops for other teachers combined with media coverage were among the ideas proposed. Extending the scope from the beaches to rivers was another proposal.

Proposed activities for Phase 2 of the Sandwatch project

During another small group activity, students and teachers discussed ideas for phase 2 of the project – this involves the implementation of projects together with communities to improve a particular beach. A series of guidelines were prepared for the group discussions, see Annex VI. The results from the individual groups have been integrated below. (Table 1 shows the individual ideas put forward by each country)

- adopt-a-beach programmes
- clean-up campaigns and clearing drains
- encouraging correct disposal of garbage at beaches (bins, closing beaches at night)
- tree planting and other measures to reduce erosion
- lobbying governments against new beachfront development, especially foreign owned development, and loss of beach access
- encouraging enforcement of legislation
- involvement of communities and private business
- national workshops involving teachers from other schools
- preparation of videos
- websites
- media campaigns
- marches and rallies
- competitions to design posters and logos
- establish databanks

Table 1 Proposed activities for phase 2 of the Sandwatch project

Country	Proposed activities
Bahamas	Create awareness about the need for beach management; provision of beach facilities (toilets, rubbish bins, benches)
Barbados	Lobbying government agencies and holding town meetings to maintain public access to the beach and reduce foreign ownership of beachfront properties
British Virgin Islands	Involve all the primary and secondary schools in

	the adopt-a-beach programme; clean-up campaigns; science fairs
Cuba	Promote natural ways of conserving the beach e.g. tree planting; establish a data bank; media campaign; design a logo; provision of facilities such as rubbish bins
Dominica	Beach clean-ups; provision of rubbish bins, toilets; clearing drains; enforcement of legislation; rallies and marches; creation of websites; media campaigns
Dominican Republic	Promote natural ways of conserving the beach e.g. tree planting; establish a data bank; media campaign; design a logo; provision of facilities such as rubbish bins
Grenada	Beach clean-ups; provision of rubbish bins, toilets; clearing drains; enforcement of legislation; rallies and marches; creation of websites; media campaigns
Guyana	Effective disposal of garbage at the beach; closing beaches at night
Netherlands Antilles	Produce a video on the Sandwatch project for distribution to the schools
St. Kitts and Nevis	Beach clean-ups; provision of rubbish bins, toilets; clearing drains; enforcement of legislation; rallies and marches; creation of websites; media campaigns
St. Lucia	Reducing erosion with gabion baskets, tree planting and artificial reefs
St. Vincent and the Grenadines	Provision of garbage bins on beaches; preventing building on the beach through lobbying efforts
Trinidad and Tobago	Create awareness about the need for beach management; provision of beach facilities (toilets, rubbish bins, benches)
Cook Islands	Poster competitions to design a logo for the Sandwatch project; puppet shows to raise awareness on beach pollution issues; rubbish bin painting competitions
Palau	National Sandwatch project workshop for teachers; start activities on a pilot project basis with one school
Seychelles	Involve the school environmental clubs in the Sandwatch project; start activities at one school on a pilot project basis

Islands in the Caribbean which had not started phase 1 activities (British Virgin Islands, Netherlands Antilles and Trinidad and Tobago) discussed ways to start

Sandwatch activities. They agreed that Phases 1 and 2 could be combined.

Proposed Sandwatch activities in islands in the Indian Ocean and Pacific regions

Seychelles plan to launch Sandwatch project activities in one pilot secondary school in 2003-2004 and provide the necessary equipment (water quality monitoring kits, tape measure, compass, stopwatch) and training in their use. Depending on the success of this pilot activity the project will be expanded to other schools in the country.

The Cook Islands plan to start with activities that do not require much equipment, such as simple observations of the beach. They plan to hold a workshop for Upper Primary School Teachers in 2003 to get started; and also to see how Sandwatch can be integrated into the Associated Schools Project Network. In the longer term they hope to see a national Sandwatch competition, and possibly a regional Pacific Sandwatch programme.

Palau, through the Environmental Educator at the Environmental Quality Protection Board, plans to start with a pilot project in Ngiwal. This school is located close to a beach. Most of the schools in Babeldaob could benefit from this programme, given that teachers are often starved for new information and activities, and given that the majority of villages and schools are adjacent to beaches. While beaches are not of great concern in Palau at the moment, pending development pressures indicate the need to focus on them early. In addition, the monitoring skills that students learn through this programme could be applied to other environments with more pressing concerns (such as mangroves). This means that the focus of the programme would likely be primary schools. The Environmental Quality Protection Board is also planning to hold an Environmental Educators' forum in 2003, at which time the Sandwatch project can be introduced and its applicability assessed.

CHAPTER 4 SMALL ISLANDS VOICE ACTIVITIES

One of the goals of the Second Regional Sandwatch Workshop was to present the Small Islands Voice project to the participating Caribbean countries, to obtain some initial input and to lay the foundation for their future involvement.

Small Islands Voice is an inter-regional project and involves islands in the Caribbean, Indian Ocean and Pacific regions. It was through cooperation with this project that representatives from Cook Islands and Palau in the Pacific and Seychelles in the Indian Ocean participated in the Second Regional Sandwatch Workshop.

Small Islands Voice

Small Islands Voice is an initiative started by UNESCO in early 2002. This project is all about people in small islands:

- exchanging their views on environment and development issues
- working together to solve their problems
- taking part in the Small Island Developing States' Programme of Action

Small Islands Voice seeks to overcome the isolation of small islands by building capacity and strengthening local, regional and inter-regional communication by:

- obtaining islanders' views on environment and development issues through meetings, opinion surveys, talk shows and other activities. These are supported by radio, television and print media
- encouraging young islanders to discuss environment and development issues among themselves using new technologies
- debating these issues regionally and globally through internet-based discussions
- identifying key issues emerging from these debates and channelling them back to the local level for action on-the-ground, and towards the global level, especially international programmes dealing with sustainable development of small islands

Further information about Small Islands Voice activities is available at www.smallislandsvoice.org

Three of the Caribbean islands represented at the workshop were already taking part in Small Islands Voice and they described some of their activities to the workshop participants. The students from Marigot Secondary School in Dominica outlined how they were taking part in the Small Islands Voice internet-based youth forum (www.sivyouth.org with username *view* and password *only*). One of the discussions in which they had been involved dealt with how to solve the problem of drug abuse.

Involvement in the Small Islands Voice youth forum was also one of the activities described by Mr. Herman Belmar of Bequia in St. Vincent and the Grenadines. The Bequia Community High School had prepared the lead article to launch this forum in September 2002. Students had learnt more about other countries' cultures and ways of life from this internet exchange than would have been possible from any textbook. As a result they had been motivated to include other schools in the youth forum. Other Small Islands Voice activities included radio shows and community meetings, a poster and slogan competition, and SCUBA training for students during the summer holidays. In St. Vincent and the Grenadines, Small Islands Voice (SIV) and Sandwatch activities were being combined. 'SIV is you, SIV is me, SIV is all of we'.

The workshop participants listened to a rap poem 'Mother Earth's Dying Cries' (<http://www.unesco.org/csi/smis/siv/SIVrap-poem.mp3>) and a promotional jingle (http://www.unesco.org/csi/smis/siv/SIV_jingle.mp3) prepared by St. Kitts and Nevis as part of their Small Islands Voice activities. The goal in St. Kitts and Nevis is to have Small Islands Voice become a household word, and

to this end an opinion survey has been conducted. Discussions on the issues identified in the opinion survey are going to be broadcast live and call-in programmes conducted. Following the discussion phase, the goal is to move from talk to action.

Environment and development issues

Following this introduction, the workshop participants divided into small discussion groups to begin to identify and discuss the main issues of concern in the environment – development arena in their countries. Youth and adults were grouped separately. The guidelines for the group discussions are included in Annex VI.

Youth concerns

Teenage pregnancy and drug abuse were identified as the priority concerns by the two groups discussing youth issues. The full list of issues was as follows:

- teenage pregnancy
- drug abuse
- health care
- impacts of development on the environment e.g.
 - water shortages in Dominica,
 - pollution in St. Vincent and the Grenadines
 - solid waste disposal in Guyana
 - waste disposal in Trinidad and Tobago
 - whale conservation in Dominica
- social issues e.g. unemployment in Dominica
- communication limitations e.g. lack of information on projects like Small Islands Voice in Cuba

The two youth groups then worked on the preparation of dramatic skits to portray the problems of (1) teenage pregnancy, and (2) drug abuse. These were performed at the closing ceremony of the workshop where they were very well received. Indeed Mr. Felix Gregoire, Permanent Secretary in the Ministry of Education, Youth and Sports took up the issue of teenage pregnancy in his address at the closing ceremony.

What to do with pregnant students is an issue facing all the Ministries of Education in the region and a policy decision to allow pregnant students to continue their education is due by September 2003.

Adult concerns

The two adult groups also prioritised their concerns. The main priority concern was identified as a group of social issues comprising drug abuse, crime, violence and especially gang violence, and unemployment. It was felt that it was impossible to separate these issues. The complete list of issues was as follows:

- drug abuse, crime, violence especially gang violence, unemployment
- population pressures (Seychelles)
- reduction in the quality of life (Dominican Republic)
- trade embargo (Cuba)
- impacts of development on environment e.g. habitat destruction by extractive industries (Guyana), river pollution (Trinidad and Tobago), lack of land development control (Palau), foreign ownership of beachfront developments (Barbados)
- waste management (Cook Islands)

Suggested solutions are as follows:

- lobby governments and other organizations to teach ethics, morals and financial values at an early age
- improved education at all levels
- empower the youth to feel a sense of person and place, encourage skills and technical training, and promote self-employment
- encourage cohesion between school, home and communities
- establish drug rehabilitation centres
- in the short term, improve security at schools

CHAPTER 5 SANDWATCH: THE WAY AHEAD

The countries involved in the first phase of the Sandwatch project unanimously endorsed the project and lauded the benefits it provided. However, as discussed in Chapter 3 they noted some serious constraints they had experienced in trying to implement the first phase. In particular they recommended that administrative, organisational and financial support would be required from schools, parents, communities, the private sector, government agencies especially the Ministries of Education, UNESCO National Commissions, and the UNESCO regional office in order to effectively implement the second phase of the project.

Taking into account these recommendations, a draft plan of action for the second phase of Sandwatch has been prepared. While the Regional Office for UNESCO in Kingston, Jamaica will play an overall coordinating role for the Sandwatch project, the national Sandwatch coordinators, the National Commissions and UNESCO headquarters (ASPNet and CSI) all have vital functions to fulfil in the project.

The countries participating in the workshop recommended that a coordinator for the ASPNet Caribbean Sea Project should be appointed as soon as possible, and should have a visible presence in the countries. They also recommended that there should be a paid position for a Sandwatch coordinator in each country. The following recommendations were made with the understanding that they be shared among the organisations and countries involved.

Short term recommendations

Coordination

- designate the teachers attending the Second Regional Sandwatch Workshop as national Sandwatch coordinators
- encourage improved sharing of information between the Sandwatch national coordinators and their respective National Commissions, noting that communication is a two-way process requiring proactive action on the part of both parties

Activities

- countries starting on Phase 2 activities (Bahamas, Barbados, Cuba, Dominica, Dominican Republic, Grenada, Guyana, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines) prepare and submit their plans for the implementation of Phase 2 activities to the UNESCO Kingston Office
- countries just getting started on Phase 1 activities (British Virgin Islands, Netherlands Antilles, Trinidad and Tobago) prepare and submit their plans for the implementation of Phase 1 monitoring to the UNESCO Kingston Office
- contact be made with the National Commissions of those countries which did not attend the Second Regional Sandwatch Workshop (Antigua and Barbuda, Aruba, Belize, Costa Rica and Jamaica) to determine whether there is still sufficient interest to merit their continued involvement in the Sandwatch project

Funding

- national Sandwatch coordinators inform their National Commissions for UNESCO about the outcome and recommendations of the workshop so that they can assist with seeking further financial support for Sandwatch
- countries which are only just now getting started on Phase I activities (British Virgin Islands, Netherlands Antilles and Trinidad and Tobago) seek funding for Sandwatch equipment from UNESCO and other sources including the private sector. (One set of equipment costs US\$ 250-300)

Publications and awareness material

- report on the Second Regional Sandwatch Workshop prepared and distributed
- Sandwatch methods manual, prepared in 2001, updated for publication
- a brochure for promotion of the Sandwatch project designed with input from the countries involved in Sandwatch
- competition held for a Sandwatch logo
- 2000 copies of the Sandwatch poster printed and distributed
- national Sandwatch coordinators send copies of their workshop

presentations and reports to the UNESCO Kingston Office

Longer term recommendations

Activities

- countries carry out Phase 1 and 2 activities
- future regional workshops could consider ways to integrate Sandwatch project activities across the school curriculum
- Starting in 2005, conduct assessments of some of the Phase 2 projects through inter-country exchanges
- conduct a Regional Sandwatch Workshop (late 2005/early 2006) to assess the overall impact of Phases 1 and 2, and to consider sustainable ways in which the scope of the project can be expanded

Funding

- countries seek funding from UNESCO sources (Participation Programme funds, Kingston Office and Headquarters) and especially from other sources (governmental and private sector) to implement phase 1 and 2 activities effectively

Publications and awareness material

- create and regularly update a website for the Sandwatch project
- print and distribute copies of the published Sandwatch methods manual
- print and distribute a promotional brochure for the Sandwatch project

Concluding remarks

The Sandwatch project has tremendous potential to preserve beach resources and to make science come alive for school students – not only in the Caribbean – but also in the Indian Ocean and Pacific regions as well. The discussions and output of this workshop have clearly illustrated what teachers and students can do with very limited resources. With improved coordination and communication among the countries and the organising bodies, and some increased financial input, the potential of this project is enormous – to provide for inter-cultural exchange and peace building initiatives; to increase interest in science among students; and to reduce pollution and safeguard beach resources.

Annex I

**Country representatives at the First Regional Sandwatch Workshop,
St. Lucia 31st May to 2nd June 2001**

Antigua and Barbuda

Ms. Stacy Corbett, Bolan's Primary School, Bolan's Village, St. Mary's Parish, Antigua and Barbuda

Aruba

Mr. Sjoerd Van Loon, Colegio Cristo Rey, Brazil, Aruba

Bahamas

Mr. Hamblin Newbold, Ministry of Education, Youth and Sports, P.O. Box 3913, Shirley Street, Nassau, Bahamas

Barbados

Mr. Randolph E. Woodroffe, Coleridge and Parry School, Ashton Hall, St. Peter, Barbados

Belize

Mr. Vincent Nunez, Holy Family Roman Catholic School, Hopkins Village, Stann Creek District, Belize

British Virgin Islands

Ms. Tonya Monelle Bertie, Lenora Delville Primary, Road Town, Tortola, British Virgin Islands

Costa Rica

Ms. Yenori Bryan Jenkins, Escuela de Puerto Viejo, 400 m noroeste de la parada de bus en Puerto Viejo, Costa Rica

Cuba

Ms. Georgina La O Quintana, Secondary School Manuel Bisbe, Havana, Cuba

Dominica

Ms. Kathleen George, Colihaut Primary School, Colihaut, Dominica

Dominican Republic

Mr. Carlos Felipe Navarro Rodriguez, Centro Educativo Las Americas/Colegio Salvador Sturla, Club Rotario Esq. Calle 10, Alma Rosa, Santo Domingo, Dominican Republic

Grenada

Ms. Helena Patrice, Holy Cross Munich R.C. School, Munich Post Office, St.

Andrew's, Grenada

Guyana

Ms. Lorna McPherson, National Centre for Educational Resource Development, Ministry of Education, 21 Brickdam, Georgetown, Guyana

Jamaica

Mr. Alva Gardener, Runaway Bay All Age, P.O. Box 43, Runaway Bay, St. Ann, Jamaica

Netherlands Antilles

Mr. Harold Welvaart, St. Peter School, Westpunt 5, Curaçao

St. Kitts and Nevis

Mr. Warren Wyatt, Sandy Point High School, Mount Idle, Sandy Point, St. Kitts

St. Lucia

Mr. Timothy Atkins, Micoud Secondary School, Micoud, St. Lucia

Mr. Bennet Charles, St. Lucia National Youth Council, P.O.Box 1232, 12 Peynier Street, Castries, St. Lucia

Ms. Anne Johnson Lowrie, St. Joseph's Convent, Castries, St. Lucia

Mr. Davhindra Mandroop, Castries Comprehensive Secondary School, Castries, St. Lucia

Ms. Flavia Martial, Sir Ira Simmons Secondary School Choc Bay, Castries, St. Lucia

Mr. Mathew Modeste, Coufriere Comprehensive Secondary School, Cressland, Soufriere, St. Lucia

Mr. David F. Moise, Corinth Secondary School, Corinth, Gros Islet, St. Lucia

Ms. Heide Toussaint, Glendon Mason Memorial Secondary School, Mole Road, Dennery, St. Lucia

St. Vincent and the Grenadines

Mr. Herman Belmar, Bequia Community High School, P.O.Box 75, Port Elizabeth, Bequia, St. Vincent and the Grenadines

Trinidad and Tobago

Ms. Carol Ann Sukal Forde, Point Fortin Senior Secondary, Main Road, Point Fortin, Trinidad and Tobago

Portsmouth, Dominica, 7-9th July 2003

Sunday 6th July 2003

Students and teachers arrive and set up their exhibits and displays

Registration of participants

Monday 7th July 2003

09.00

Opening ceremony

National anthem

Welcome address by the Secretary-General, Dominica National Commission for UNESCO, Ms. Alexandra Burton James

Address by the Mayor of Portsmouth, Mr. Julian Brewster

Musical Presentation

Remarks by Ms. Gillian Cambers, UNESCO Consultant

Remarks by Ms. OlatzLanda, Representative UNESCO Field Office - Jamaica

Musical presentation

Short address by Ms. O'Brien, Ministry of Education, Sports and Youth Affairs

Vote of thanks by Ms. Kathleen George

09.45

Break

10.00

Presentations on Sandwatch beach monitoring activities

by student representatives from:

Dominica - Dublanc Primary School

Barbados – Coleridge and Parry School

Cuba - InstitutoPreuniversitarioVocacional de Ciencias Exactas 'Ernesto Guevara'

Guyana – St. Rose's High School

Dominica – Salisbury Primary School

St. Vincent and the Grenadines – Bequia Community High

School

Dominica Republic – LiceoSecundario Gaston F. Deligne

British Virgin Islands – British Virgin Islands High School

12.30

Country 'snapshots' from Cook Islands and Palau in the Pacific

13.00

Lunch

14.00

Field activity – guided walk through the Cabrits National Park, followed by a tree planting activity at Glanvillia Beach, Portsmouth

Tuesday 8th July 2003

08.30 **Planning for Phase 2 of the Sandwatch project
'Implementation of beach improvement projects'**

Students and teachers break into five small groups to discuss ideas for Phase 2 Sandwatch activities, following which they present ideas to the entire plenary group

10.30 Break

11.00 **Presentations on Sandwatch beach monitoring activities
continued**

by student representatives from:

Bahamas – Hope Town Primary School, Abaco

Grenada – Anglican High School

St. Kitts and Nevis – Sandy Point High School

St. Lucia – St. Josephs Convent Secondary School

Trinidad and Tobago - Mayaro Government Primary School

Dominica – Portsmouth Secondary School

12.30 **Country 'snapshots' from Netherlands Antilles and
Seychelles in the Indian Ocean**

13.00 Lunch

14.00 **Field activity - whale watching boat trip**

Wednesday 9th July 2003

08.30 **Small Islands Voice project**

Introduction to the Small Islands Voice project by representatives from Puerto Rico, Dominica, St. Kitts and Nevis, and St. Vincent and the Grenadines

09.30 **Issues of concern**

Youth

Students break into small groups and discuss their concerns about environment and development

Adults

Teachers and others break into small groups and discuss their concerns about environment and development

10.30 Break

11.00 Students and adults present the findings from the group session to the entire plenary group

11.30 **Drama presentations (students)**

Students work in groups on preparation of small dramatic skits to demonstrate one or more of the issues they are concerned

about as Caribbean youth

Evaluation and long-term strategy for the Sandwatch project (teachers)

Teachers break into groups to evaluate the Sandwatch project and to discuss implementation of Phase 2 and strategies for widening the scope of Sandwatch to include more schools in each country

13.00 Lunch

14.00 **Drama presentations continued**

Students continue work on their dramatic skits and practice for the afternoon's performance

Evaluation and long-term strategy for the Sandwatch project continued

Teachers complete the strategy session and prepare their findings for presentation at the closing ceremony

16.00 **Closing ceremony**

National anthem

Welcome address by the Secretary-General, Dominica National Commission for UNESCO, Ms. Alexandra Burton James

Drama presentation by student representatives

Presentation on the future of the Sandwatch Project by Mr. Andy Paul, Trinidad and Tobago

Dramatic presentation by student representatives

Remarks by Ms. OlatzLanda, Representative, UNESCO Field Office, Jamaica

Drama presentation 'Up from the Deep' by Ms. Racquel Phillips and Mr. Michael Peniston, St. Vincent and the Grenadines

Address by Mr. Stephenson Hyacinth, Chief Education Officer, Ministry for Education, Sports and Youth Affairs

Address by Mr. Felix Gregoire, Permanent Secretary, Ministry of Education, Sports and Youth Affairs

Cultural presentation by Dominican youth cultural group

Award ceremony

Flag ceremony

Vote of thanks by Portsmouth Secondary School, Dominica

17.45 Refreshments

Dismantle exhibits

Thursday 10th July 2003

Participants depart

Sandwatch project methods demonstration for countries new to

the project

Annex III

Participants at the Second Regional Sandwatch Workshop, Dominica, July 2003

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Annex IV

Guidelines for judging Sandwatch presentations and exhibits

1. Judging categories

In view of the age range of the students involved, two categories are suggested: primary school students 8-11 years, and secondary school students 12-16 years.

3. Judging criteria

Judges will be asked to assess the verbal and display presentations from each country out of a total of 60 points, according to the following criteria:

Verbal skills (out of a total of 10 points)

- Delivery of presentation (poise, emphasis, audience eye-contact)
- Content of presentation (clarity, logic, understandable material)

Keeping within time allocation (10-15 minutes)

Exhibition display (out of a total of 10 points)

Clarity of the material displayed
Use of pictures, photos and graphs
Display of data
Summary of results/findings

Methodology (out of a total of 10 points)

Description of activities undertaken and methods used

Data collection (out of a total of 10 points)

Qualitative information/data collected (e.g. observations)
Quantitative information/data collected (e.g. numbers of different types of beach debris, measurements of beach width)

Data analysis (out of a total of 10 points)

Ways in which the data collected (both qualitative and quantitative) was used to arrive at conclusions

Involvement of other persons (out of a total of 10 points)

Ways in which other people (besides the participating students) have involved/or plan to involve other persons, e.g. parents, other schools, people in the community, media.

Annex V

Schools taking part in Phase 1 of the Sandwatch project

Bahamas

Hope Town Primary School, Abaco – fully involved in Phase 1

Barbados

Coleridge and Parry School – fully involved in Phase 1

Garrison Secondary School – students trained, monitoring of beach debris and turtles started but teacher left, so activities suspended

Ellerslie Secondary School – students and teacher trained, monitoring did not get started

St. James Secondary School – students and teacher trained, monitoring did not get started

British Virgin Islands

British Virgin Islands High School – no training had been provided, but the

student presented some other community-based beach activities

Cuba

Instituto Preuniversitario Vocacional de Ciencias Exactas 'Ernesto Guevara' Santa Clara – fully involved in phase 1

Instituto Preuniversitario Vocacional de Ciencias Exactas 'Frederico Engles' Pinar del Rio – fully involved in phase 1

Escuela Primaria 'Guerillero Heroica' Ciudad Habana – fully involved in phase 1

Escuela de Arte – fully involved in phase 1

Escuela Secundaria Basica – fully involved in phase 1

Dominica

Dublanc Primary School - fully involved in phase 1

Salisbury Primary School - fully involved in phase 1

Portsmouth Secondary School - fully involved in phase 1

Colibistrie Primary School - fully involved in phase 1

Colihaut Primary School – trained and started monitoring, but were forced to stop when the beach was replaced with a boulder revetment

Dominican Republic

Twelve schools cooperated at five different beaches, all the schools were fully involved in phase 1:

Liceo de Educación Media 'Pedernales', Pedernales

Centro Educativo 'Las Américas', Santo Domingo

Liceo de Educación Media 'Ernestina Tejeda', Villa Fundación

Liceo de Educación Media 'Francisco Gregorio Billini', Bani

Liceo de Educación Media 'Gastón F. Deligne', San Pedro de Macorís

Colegio 'San Pedro Apóstol', San Pedro de Macorís

Liceo de Educación Media 'Sor Ana Nolan' Consulo, San Pedro de Macorís

Colegio Santa Rosa de Lima, Santo Domingo

Liceo de Educación Media 'Arístides García Mella', La Romana

Colegio Santa Teresita, Santo Domingo

Liceo de Educación Media 'San Rafael' San Rafael del Yuma

Liceo de Educación Media 'John F. Kennedy', Boca de Yuma

Grenada

Anglican High School – fully involved in phase 1

Guyana

St. Rose's High School - fully involved in phase 1

Bartica Government Secondary School - fully involved in phase 1 (focused on river monitoring)

Two Mile Primary School - fully involved in phase 1 (focused on river monitoring together with Bartica Government Secondary School)

St. Kitts and Nevis

Sandy Point High School - fully involved in phase 1

Irish Town primary School - fully involved in phase 1

Charlestown Secondary School – students and teachers trained, monitoring did not get started

St. Lucia

St. Josephs Convent Secondary School - fully involved in phase 1

Castries Comprehensive School – students and teacher trained, but teacher left

Micoud Secondary School – students and teachers trained, monitoring started 2003

Glendon Mason Secondary School – students and teacher trained, monitored water quality

Soufriere Comprehensive School – students and teacher trained, monitoring did not get started

St. Vincent and the Grenadines

Bequia Community High School - fully involved in phase 1

7th Day Adventist Secondary School - fully involved in phase 1 (work together with Bequia Community High School)

Union Island Secondary School – students and teacher trained, monitoring not yet started

Barroulie Secondary School - students and teacher trained, monitoring not yet started

Trinidad and Tobago

St. Josephs Convent Secondary School - students and teacher trained, monitoring not yet started

Point Fortin Senior Secondary School - students and teacher trained, monitoring not yet started

Mayaro Government Primary School - students and teacher trained, monitoring not yet started

Annex VI
Guidelines for discussion sessions

Small Group Session: Evaluation and long-term strategy for the Sandwatch project (teachers)

Appoint a leader and a reporter

1. Discuss and list the advantages (if any) to your school/students/country of Phase 1 of the Sandwatch project
2. Discuss and list the disadvantages (if any) to your school/students/country of Phase 1 of the Sandwatch project
3. What were the major problems encountered – prioritise these problems

4. Is it worthwhile proceeding to Phase 2 (implementation of projects)
5. Assuming the answer to question 4 is 'yes', what support will you need to implement Phase 2 from:
 - your school
 - your community
 - your UNESCO National Commission
 - UNESCO regional office/headquarters
6. Are there any aspects of Sandwatch that can be integrated into the school curriculum? Is this necessary?
7. How can we widen the scope of Sandwatch beyond your school, or beyond the two or three schools involved in your country

Small group session: Planning for Phase 2 of the Sandwatch project, 'Implementation of beach improvement projects' (teachers and students)

Appoint a leader and a reporter – both students.

Then each person in the group thinks of a project they would like to see happen to improve a beach in their home country and writes it down

Start a group discussion along the following lines:

1. Discuss what sort of projects you would like to carry out to make your beaches better
2. What sort of resources (people, equipment, money etc.) will you need to implement the projects
3. How long will it take to implement these projects?
4. How will you organise the project (e.g. will there be a class committee? Will it meet after school or during lunch break?)
5. How to go about mobilising the resources back in your countries e.g. community meetings, fund raising activities
6. How will you determine the success of your project?

Small group session: Small Islands Voice - Issues of concern about environment and development

(Separate groups for student and teachers)

Appoint a leader and a reporter

Then each person in the group thinks of one problem in their home country that

they are really concerned about

Start a group discussion along the following lines:

1. Discuss the problems and prioritise them
2. Take the first problem on the list and see if there is anything you could do as a school or as a group to solve or help reduce this problem
3. Repeat for the next issue on the list

Small group session: Small Islands Voice - preparation of dramatic skits to portray issues (students)

1. Select one of the problems or issues discussed in the earlier group session
2. Prepare a short drama piece (3-5 minutes long) illustrating this issue (involve all members of the group in the drama piece)
3. Practise the drama piece for presentation at the closing ceremony

CARING FOR CARIBBEAN BEACHES SANDWATCH PROJECT 2001- 2003

SECOND REGIONAL SANDWATCH WORKSHOP
PORTSMOUTH, DOMINICA, 7-9TH JULY 2003

by Gillian Cambers
August 2003



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Executive Summary

Executive Summary

The Sandwatch project, initiated in 1998, seeks to reduce the level of pollution in the Caribbean Sea; to train school students in the scientific observation and measurement of beaches; and to assist school students, with the help of their local communities, to apply the scientific data collected to implement projects to enhance their beaches.

Supported by the United Nations Educational, Scientific and Cultural Organization (UNESCO) through the Caribbean Sea Project, the Associated

Schools Project Net, and the platform for Environment and Development in Coastal Regions and Small Islands, the project started with a training workshop in St. Lucia in 2001. During this workshop, teachers from 18 countries met to learn about the methods and discuss plans for the first phase of the project. During the next two years, teachers and students worked to scientifically monitor changes in beach characteristics and use patterns.

Students and teachers from 12 Caribbean countries met during the Second Regional Sandwatch Workshop in Dominica in July 2003 to present their findings and plan activities for the second phase of the project. The results of the students monitoring activities, which were of a very high quality, are described in this report, and were judged by education representatives from Cook Islands, Palau and Seychelles, who participated in the workshop as part of the inter-regional activities of a related UNESCO project, Small Islands Voice.

An assessment of phase 1 recognised the many benefits of the Sandwatch project, including the renewed interest in science and its application, and the potential for Sandwatch activities to be integrated into many different subjects across the curriculum, from mathematics to creative arts. However, in order to successfully implement phase 2 of the project - the execution of school and community-based beach projects - there is a need for additional support from schools, communities, Ministries of Education, UNESCO National Commissions and the UNESCO regional office. Proposals for phase 2 projects were discussed and an action plan prepared. The inter-regional participants from the Indian Ocean and Pacific regions also prepared plans to start Sandwatch activities in their countries.

Participants also learnt about the Small Islands Voice project, an initiative that seeks to bring together islanders in the Caribbean, Indian Ocean and Pacific regions in a process of dialogue and activities for sustainable development. During workshop discussions, the students identified teenage pregnancy and drug abuse as the main issues of concern; while adults prioritised a set of social issues including drug abuse, crime, violence (especially gang violence) and unemployment as their main concerns.

Overall the workshop concluded that with improved coordination and communication among the countries and the organising bodies, and some increased financial input, the potential of the Sandwatch project is enormous – to provide for inter-cultural exchange and peace building initiatives; to increase interest in science among students; and to reduce pollution and safeguard beach resources.

CHAPTER 1 INTRODUCTION

‘How can we resolve environment and development issues in a peaceable and lasting manner so that we do not have to face the same dilemmas year after year?’

This was the question posed by Mr. Felix Gregoire, Permanent Secretary in

Dominica's Ministry of Education, Youth and Sports, to the participants of the Second Regional Sandwatch workshop in July 2003. And indeed it is a question that faces all the 16 countries represented at the workshop on a daily basis as they seek to balance the demands made by development with the need to conserve the environment. The particular matter to which Mr. Gregoire referred related to the establishment of a whaling sanctuary in the South Pacific, but the listening participants face issues much closer to home, ranging from pollution of their beaches and coastal waters by solid waste and sewage to the demands posed by tourism developers for the prime undeveloped beach sites, often a favourite haunt for residents.

These issues are among those covered by the Sandwatch project, an initiative which began in 1998 and seeks to:

- reduce the level of pollution in the Caribbean Sea
- train school students in the scientific observation and measurement of beaches
- assist school students, with the help of their local communities, to apply the scientific data collected to the management of the region's beaches

As Mr. Julian Brewster, Mayor of Portsmouth, Dominica, said at the workshop opening in July 2003:

'Collectively each of us must do what is necessary to keep the Caribbean Sea free of pollution and influence our governments in adopting effective policies.'

The idea for the Sandwatch project emerged during an Environmental Education Workshop held in Tobago in July 1998, when teachers and students identified the region's beaches as requiring special care, whilst also providing a wonderful learning environment for youth. The project has been developed and supported by several initiatives and organizations:

- Caribbean Sea Project, an initiative of the Associated Schools Project Net, which focuses on the marine environment, sustainable human development and inter-cultural awareness. It seeks to encourage cooperation among Caribbean Basin territories with a view to enlisting young people, their parents and communities, in the protection and preservation of the Caribbean Sea, including the waterways and wetlands linked to it, and the strengthening of Caribbean identity.
- Associated Schools Project Net (ASPnet) of the United Nations Educational, Scientific and Cultural Organization (UNESCO), which involves more than 7,500 member schools in more than 170 countries. ASPnet seeks to build peace through education and to establish a climate of mutual respect and non-violence in the classroom, the school, the family and the community.
- UNESCO's platform for Environment and Development in Coastal

Regions and Small Islands (CSI), which seeks to develop wise practices for the management of conflicts over resources and values; and in particular one of its field projects named 'Managing beaches and planning for coastline change, Caribbean Islands' (COSALC).

Sandwatch project: a short history

Inception

The project was developed during workshops and planning sessions over the period 1998-1999. The idea for the name 'Sandwatch' came from the young people taking part in the Environmental Education Workshop, held in Tobago in 1998. A project document for the Sandwatch project was presented to the meeting of coordinators of the Caribbean Sea Project, held in St. Vincent and the Grenadines in May 1999, where it was endorsed. In this project document, the Sandwatch initiative was divided into two phases: a first phase of approximately 18 months during which students monitor changes in their beaches and analyse the data; followed by a second phase when the students, together with their communities, apply the results of the scientific monitoring to design and implement small projects to improve and enhance their beaches.

First Regional Sandwatch Workshop, St. Lucia, May 2001

In May 2001, the project was officially launched in St. Lucia, when teachers from the participating countries met to learn about the methods to be used in Sandwatch and to discuss plans for the first phase. The following 18 countries took part in the First Regional Sandwatch Workshop in St. Lucia, 31st May – 2nd June 2001:

Antigua and Barbuda
Aruba
Bahamas
Barbados
Belize
British Virgin Islands
Costa Rica
Cuba
Dominica
Dominican Republic
Grenada
Guyana
Jamaica
Netherlands Antilles
St. Kitts and Nevis
St. Lucia
St. Vincent and the Grenadines
Trinidad and Tobago

Annex I contains a list of the country representatives who took part in this First

Regional Sandwatch Workshop.

Teachers from the 18 Caribbean territories were trained in simple beach monitoring techniques and provided with manuals and equipment sufficient for three schools in each country. The teachers agreed to act as national Sandwatch coordinators and involve other schools in their countries.

During the workshop teachers were trained in the following activities:

- beach observations
- measurement of beach debris
- water quality monitoring
- monitoring of human activities on the beach
- physical beach changes (erosion/accretion)
- sand characteristics
- wave measurements
- current measurements
- turtle nesting activity
- observations of animals and plants

The training included field measurements as well as data analysis procedures. Activities ranged from simpler activities for primary school students to more complex field methods and data analysis for secondary school students. While the workshop sessions included a brief introduction to all the above measurements, the teachers were advised to select the monitoring activities in which they were most interested and which were most relevant to their particular beaches. Thus a teacher and his/her particular class might prefer to select just one or two activities from the above list on which to focus.

On return to their countries, the national coordinators met with teachers from other schools, distributed the equipment and shared the information provided during the First Regional Sandwatch Workshop. They then started working with their students to monitor beaches near their schools, and to collect and analyse the data.

Second Regional Sandwatch Workshop, Dominica, July 2003

This workshop for students and teachers was held at the Portsmouth Cruise Ship Berth, Portsmouth, Dominica from 7-9th July 2003. Students presented the results of their beach monitoring work through oral presentations and exhibits. The workshop also provided an opportunity to assess the first phase of the project and begin planning the second phase. The goals of the workshop were to:

- exhibit, present and judge the results from the beach monitoring activities undertaken during Phase 1 of the Sandwatch project
- prepare plans for Phase 2 of the Sandwatch project, 'Implementation of beach enhancement projects'
- evaluate the Sandwatch project to date, and develop a long-term

- strategy for developing Sandwatch activities country-wide
- provide opportunities and activities for students and teachers to interact with each other and learn about Dominica: its people, culture, environment and especially its beaches
 - introduce the Small Islands Voice initiative to the Wider Caribbean region

The workshop programme is included in Annex II. Student and teacher representatives attended from the following countries:

Bahamas
Barbados
British Virgin Islands
Cuba
Dominica
Dominican Republic
Grenada
Guyana
St. Kitts and Nevis
St. Lucia
St. Vincent and the Grenadines
Trinidad and Tobago

Two educators attended from the Netherlands Antilles (Curaço). A complete list of the participants is contained in Annex III. Representatives from Aruba, Antigua and Barbuda, Belize, Costa Rica and Jamaica were unable to attend for different reasons including illness and travel difficulties.

The Cook Islands and Palau in the Pacific, and Seychelles in the Indian Ocean, were also represented at the workshop. This was arranged through cooperation with another UNESCO project 'Small Islands Voice,' an initiative which seeks to bring together islanders in the Caribbean, Indian Ocean and Pacific regions in a process of dialogue and activities for sustainable development.

CHAPTER 2 SANDWATCH PROJECT RESULTS 2001-2003

Using drama and creative arts

Up from the deep Dramatic monologue by Vernet Ollivierre

**Written for presentation by Racquel Phillips and Michael Penniston
of the Bequia Community High School, St. Vincent and the Grenadines,
at the Second Regional Sandwatch Project Workshop, Dominica 7-9
July 2003**

Up from the deep I come, I rise in protest
look at me, I was here at the

beginning of time, that was before time
created at

the firmament

above and below

Keeper of the deep

holder of myriad secrets

provider of needs

I've kept the faith

and now, your actions

will decide my fate

And so I've come up

up, up, up

from the deep

from your shores

from the river mouths

To confront you

Caution you

Plead with you

Pardon me if I am no longer

as beautiful as before

But I am adorned with the artefacts

of your generosity

Am I still beautiful to you,

Now that you have found others to love

For now you dump the discarded

treasures of your lust fast

deep in my heart

and sprinkle your litter crumbs

at the edges of my shoals

Do I deserve this?

I...keeper of the deep

holder of myriad secrets

sustainer, provider of your needs

I have kept the faith

I don't deserve this fate

I remember how I cushioned

your budding islands

in my warmth

and nourished your natives

with the richness of my store

Do I deserve this?

I...keeper of the deep

holder of myriad secrets

sustainer, provider of your needs

I have kept the faith
I don't deserve this fate

Can't we work together?
It is time we work together
in harmony
in rhythm of my water
 lapping your shores
You need to protect me
As I have sustained you

You need to promote conservation
 And cut down on pollution
We need to develop cooperation
In the preservation of marine life
 For all generations

Look at me,
 Keeper of the deep
 holder of myriad secrets
 sustainer....provider of needs
I am keeping the faith
Now by your actions reverse my fate

Love me as I love you
 Conserve me
 Preserve me
 Sandwatch me
In all generations to come

This original dramatic piece was written by Ms. Vernette Ollivierre of St. Vincent and the Grenadines. It was performed by Ms. Racquel Phillips and Mr. Michael Peniston of the Bequia Community High School at the closing ceremony of the Second Regional Sandwatch Workshop in Dominica.

As Mr. Stephenson Hyacinth, Chief Education Officer, Ministry for Education, Sports and Youth Affairs, noted in the closing ceremony:

'Drama and creative arts are not only an art form, but a method of teaching, and through this medium the students have spoken very clearly.'

The closing ceremony also saw two other dramatic pieces, written and acted by the students taking part in the workshop, and portraying two issues about which they felt strongly: teenage pregnancy and drug abuse.

Sandwatch beach monitoring presentations

The twelve Caribbean countries represented (not including the Netherlands Antilles) all prepared displays, and the student representatives gave a 10-minute presentation on their beach monitoring activities. All the presentations and exhibits were of a very high quality.

The three inter-regional participants from Cook Islands, Palau and Seychelles played a key role in the workshop by judging the oral and visual presentations from the Caribbean participating countries according to a set of pre-determined criteria, see Annex IV. Judging was conducted in two categories: primary schools (7-11 years) and secondary schools (12-18 years).

At the workshop only one school from each country was represented, with the exception of the host country, Dominica. However in most of the Caribbean countries several schools have been involved in phase 1 of the Sandwatch project, these are listed in Annex V.

Primary school presentations

Bahamas

One school has been involved in Sandwatch activities in the Bahamas, the Hope Town Primary School on Abaco. The presentation on Sandwatch monitoring was given by Ms. Katie Joseph. She described how Hurricane Floyd had nearly destroyed the island of Abaco in 1999, although the island and its communities had recovered in the following years.

Her school had measured many different aspects of the island's beaches including erosion, waves, currents, water quality and ways in which the beaches were used. They had also done some work on animals that use the beach such as turtles and whales and she described a recent whale beaching incident. They had also monitored beach debris and the students had produced an interesting 'beach pizza' made of debris found on the beach. The presentation was concluded with the distribution of some maps and promotional material relating to the Bahamas.

Dominica

Four primary schools were involved in the Sandwatch project in Dominica: Dublanc Primary School, Salisbury Primary School, Colibistrie Primary School and Colihaut Primary School. All had been fully involved in monitoring beaches although unfortunately the Colihaut Primary School had been forced to stop monitoring activities when the beach they were working on was protected with a boulder revetment which covered up the beach area.

The students from Dublanc Primary School: Ms. Eudorra Bertrand, Ms. Diedre Fountaine and Ms. Crystal Hilton described the characteristics of their beach and showed some of the poems, stories and pictures the class had prepared. They had identified garbage and debris as the main problem at their beach. Then they conducted an interview survey to find out how people

viewed the beach and they described how some interviewees had responded by swearing at them. Finally they prepared placards and held a march round the village to tell people to listen and get it right and keep the beach clean. After their march people from the community went to the beach and cleaned it. As a follow-up activity the students wrote to the Village Council. They also demonstrated how they had made decorative bottles and pencil holders using the materials discarded on the beach.

Mr. Quincy Casimir, Ms. Clesha Larocque and Mr. Kelton Vidal of Salisbury Primary Schools described their observations and the results of their beach debris measurements. According to an interview survey they conducted, 90% of the respondents felt the beach was clean and that most of the debris was of natural origins. They used bar graphs to illustrate this point. They suggested the beach could be improved with toilets, signs and benches.

Trinidad and Tobago

The Point Fortin Secondary Schools had initially started Sandwatch activities, but for several reasons these had been abandoned. As a result of contact and collaboration with the Bequia Community High School in St. Vincent and the Grenadines, Mr. Saleem Dane Ali described how the Mayaro Government Primary School had recently become involved in the Sandwatch project. This school had previously carried out beach clean-up activities and environmental field trips. They had selected Plaisance Beach for monitoring, although activities were only just beginning. This was the only school in Trinidad and Tobago involved in the Sandwatch project.

Secondary school presentations

Barbados

Training in Sandwatch monitoring activities had been provided to four schools in Barbados: Coleridge and Parry School, Garrison Secondary School, Ellerslie Secondary School and St. James Secondary School. However, only in the first two schools was monitoring actually conducted, with the Coleridge and Parry School concentrating on the physical changes in the beach and the processes shaping them, and the Garrison Secondary School monitoring beach debris and turtles.

Mr. Anderson Whittier of the Environmental Club of the Coleridge and Parry School described how contact had been made with the Government of Barbados' Coastal Zone Management Unit who had provided some additional training. Monitoring of the waves, currents and beach erosion, as well as water quality in the salt pond started in January 2002. The project had won a silver award at the 2002 Regional Science Fair. In addition, the results of the monitoring had been presented to the public on World Water Day and an exhibition had been displayed. A beach clean-up had also been conducted. The project had been presented at the school's annual speech day.

British Virgin Islands

Schools in the British Virgin Islands have not yet started monitoring activities, however, the British Virgin Islands High School was keen to start. Ms Shaniqua Henley presented an overview of the problems facing some of the beaches in the British Virgin Islands. She described how a water quality problem at the popular Cane Garden Bay had been solved with a sewage treatment plant and how the residents of the area had conducted an effective clean-up campaign. She also referred to the erosion at Cappaons Bay, a popular surfing beach where littering was a problem especially at full moon parties. Beach sand mining is also a problem in Tortola, especially at Josiahs Bay. The British Virgin Islands are planning to start an adopt-a-beach project soon.

Cuba

The following schools were fully involved in the monitoring activities: Instituto Preuniversitario Vocacional de Ciencias Exactas 'Ernesto Guevara' Santa Clara, Instituto Preuniversitario Vocacional de Ciencias Exactas 'Frederico Engles' Pinar del Rio, Escuela Primeria 'Guerillero Heroica' Ciudad Habana, Escuela de Arte, Escuela Secundario Basica.

Ms. Lisett Pérez Quintero said she represented 933 students and described how the school at Santa Clara chose two beaches for monitoring – a virgin beach and a more heavily used beach with pollution problems. They monitored the beach characteristics and changes as well as the use of the beach. Visits were made to environmental agencies and the Santa Clara community were involved in a regular series of cleaning and replanting exercises. Younger students took part in raising the level of awareness about the beach problems. A radio programme, newspaper articles and a newsletter 'Nature and I' were prepared. Now the community are helping with the work on a regular basis and it had been agreed by all concerned that the level of pollution had been decreased.

They are now trying to extend the programme to other beaches with pollution problems and to extend the project to other Cuban provinces. The Sandwatch monitoring activities are being incorporated into different subjects: biology, mathematics, geography.

Dominica

The Portsmouth Secondary School had recently become involved in the Sandwatch project. Ms. Bernella Breedy, Ms. Jerelle Joseph and Ms. Gail Sharplis described how they had monitored erosion, waves, tide and beach debris at Glanvillia Beach over a seven-day period. They had found that plastics were the main component of the debris. They had written poems about the beach and prepared a video showing their activities.

Dominican Republic

Twelve schools had been involved in the Sandwatch monitoring activities:

- Liceo de Educación Media 'Pedernales', Pedernales
- Centro Educativo 'Las Américas', Santo Domingo
- Liceo de Educación Media 'Ernestina Tejeda', Villa Fundación
- Liceo de Educación Media 'Francisco Gregorio Billini', Bani
- Liceo de Educación Media 'Gastón F. Deligne', San Pedro de Macorís
- Colegio 'San Pedro Apóstol', San Pedro de Macorís
- Liceo de Educación Media 'Sor Ana Nolan' Consulo, San Pedro de Macorís
- Colegio Santa Rosa de Lima, Santo Domingo
- Liceo de Educación Media 'ArístedesGarcíaMella', La Romana
- Colegio Santa Teresita, Santo Domingo
- Liceo de Educación Media 'San Rafael' San Rafael del Yuma
- Liceo de Educación Media 'John F. Kennedy' Boca de Yuma

Mr. Juan Mejia Reyes described how waves, currents, beach erosion, and sand composition had been measured on a regular basis at three beaches. Their work had show different types of pollution problems including an increase in silt. The river and the fishing communities were a source of pollution. They had talked to some of the communities about the pollution problem and had also had articles published in the newspaper.

Grenada

The Anglican High School had been working on the Sandwatch project and Ms. Jodie-Anne Johnson described how beach erosion, sand characteristics, water quality, waves and longshore drift had been measured at Grand Anse Beach. They had noted that algae had covered the beach at times. They had met with the Ministry of Health and the Board of Tourism. The students were planning to begin an anti-pollution campaign. Future activities would include a questionnaire survey of beach users, and a seagrape tree planting activity – scheduled for mid-August 2003.

Guyana

Three schools in Guyana had been involved in the Sandwatch project: St. Rose's High School who focused on beach monitoring; and Bartica Government Secondary School, who together with Two Mile Primary School worked on river monitoring.

Ms. Angela Lewis presented the monitoring results and described how rubbish on the beach was a major problem. They had conducted several clean-ups but the rubbish continued to be a problem. They had put up posters, published newspaper articles and involved the community but the continuing reappearance of the rubbish was somewhat discouraging. The Sandwatch monitoring activities had been integrated into the school curriculum.

Netherlands Antilles

Sandwatch monitoring activities in the Netherlands activities have not yet started. Ms. Michelle da Costa Gomez and Mr. Leendert Pors from Curacao described the island of Curaçao and particularly focused on how land use zoning was very effective. Their institution, the Carmabi Foundation, focuses on research, education and conservation activities.

St. Kitts and Nevis

Two schools in St. Kitts are involved in the Sandwatch monitoring activities: Sandy Point High School and Irish Town Primary School. While training was provided to the Charlestown Secondary School in Nevis, monitoring activities have not yet started.

Mr. Randel Thompson described how several beaches had been selected for monitoring, including Pump Bay, Frigate Bay and the Basseterre Bayfront. Monitoring had included erosion, waves, currents, tides, water quality, debris and beach use. A video had been prepared showing the characteristics of South Frigate Bay, and this was shown as part of the presentation. Beach debris was a serious problem. Paintings of the beach were also displayed.

St. Lucia

Five schools had been involved in the Sandwatch activities in St. Lucia: St. Josephs Convent Secondary School, Micoud Secondary School, Glendon Mason Secondary School, Castries Comprehensive School, Soufriere Comprehensive School. But beach monitoring had only been conducted at the first three schools.

Ms. Zayne Fevrier and Ms Whitney Henry presented the results from the monitoring of Vigie Beach by the Environmental Club of the St. Josephs Convent Secondary School. They had measured erosion, waves, currents, sand characteristics and beach debris. Their work showed that erosion was the main problem and that there were some quite significant seasonal variations in the size of the beach at different locations.

St. Vincent and the Grenadines

Four schools had been involved in the Sandwatch project: Bequia Community High School, 7th Day Adventist Secondary School, Union Island Secondary School, Barroulie Secondary School; although monitoring had not yet started in the latter two schools.

Ms. Racquel Phillips and Mr. Michael Penniston described how they had started monitoring the erosion and accretion at ten beaches in Bequia since 2000. They had measured beach profiles and analysed the data; they had also trained students from other Grenadine islands in these activities. They had conducted beach clean-ups and had done an in-depth study of Tobago Marine Park including currents, waves, erosion and debris analysis. Their work here showed that erosion was a significant problem, particularly the seasonal

changes. They planned in the future to do an in-depth study of Friendship Bay.

They also described a glass project they were conducting wherein they collected and reused broken glass. Parents and students would collect up their empty bottles and bring them to the school for breaking by the students. The broken glass was then used to make seats and benches which were placed in the school and around the community.

Judging of the presentations

All the presentations were of a very high quality and demonstrated the very hard work that had been done by the students, aided by their teachers.

The winning school in the primary school section was Dublanc Primary School, Dominica; and in the secondary school section, the winner was Instituto Preuniversitario Vocacional de Ciencias Exactas 'Ernesto Guevara', Cuba.

During the closing ceremony every country received certificates and one science kit, and the two winning schools received two science kits.

Inter-regional presentations

Cook Islands, Pacific Ocean

Ms. Natalie Faitala told the participants that in the Cook Islands there are volcanic islands and atolls, however, there is very limited land area. Some of the islands are very small although they may enclose a large lagoon. Beach-based tourism is the main industry accounting for 60% of the gross domestic product. Beaches are important in the Cook Islands for tourists and residents. A non-governmental organization, the Rarotonga Environmental Awareness Programme, has started an adopt-a-beach programme, whereby schools, youth and church groups take care of a particular beach. They also have a programme of environmental rangers, which consists of young people 6-12 years old. Cook Islands participate in the international coastal clean-up which takes place in September every year and they try to get everyone involved. Youth are at the forefront in looking after beaches, and Cook Islands hopes to get involved in the Sandwatch project.

Palau, Pacific Ocean

Ms. Anuradha Gupta gave a short overview of Palau. She described how family and cultural links are very important and that women traditionally have a taro patch while the men go fishing. The country faces developmental pressure from inside and outside. The goal is to have 140,000 tourists a year, and a new road is being built around Babeldaob which it is hoped will encourage development. Beaches are not used intensively in Palau, so litter is not a major problem, although development pressure is growing. Two islands in the south are experiencing serious erosion. As yet beaches are not

monitored, although Palau hopes to start Sandwatch activities.

Seychelles, Indian Ocean

Seychelles consists of an archipelago of granite islands and atolls lying in the Indian Ocean. While tourism is very important to the country's economy, Ms Jeanette Larue described how the country is very active in the environment arena. There is an Environmental Education Committee with representatives of all ministries and some non-governmental organizations. All the schools have environmental clubs and are actively involved in environmental and conservation activities. Seychelles also plans to start Sandwatch activities in the near future.

Benefiting from cultural exchanges

Inter-cultural awareness is an important part of the Caribbean Sea Project, and there was ample opportunity for exchanges between participants from different countries, on an informal and formal basis during the three days of the workshop. This workshop was unique in that it provided an opportunity for inter-regional exchanges with participants from the Pacific Ocean and the Indian Ocean regions. This was especially symbolic and moving during the closing ceremony when the participants displayed their countries' flags and described the symbolism of their flags.

There was also the opportunity for overseas participants to learn about the host country Dominica. As the Major of Portsmouth, Mr. Julian Brewster, said during the opening ceremony:

'People in Dominica are presently under considerable pressure as they adapt to new, stringent economic policies, but still people manage to smile.'

There was ample opportunity to see those 'smiles' as participants visited Portsmouth, and the Cabrits National Park. Residents of Portsmouth also observed the workshop participants planting some West Indian almond trees on the Glanvillia beach front on the first day of the workshop. The Forestry, Wildlife and Parks Division provided the trees and showed the participants correct planting procedures, and demonstrated how this particular species was especially suitable for beaches since it was fairly fast growing, and once mature the trees could withstand hurricane waves and winds.

A whale watching boat trip provided participants with the opportunity to see Dominica from the sea and the trip was very enjoyable although unfortunately the whales were somewhat elusive that day. Dominican cultural displays were an important and colourful part of the opening and closing ceremonies.

CHAPTER 3 SANDWATCH PROJECT: ASSESSMENT AND FUTURE PLANNING

During the workshop there were several group discussions sessions where students and teachers focused on the planning and execution of the Sandwatch project and how to proceed with the next phase.

Assessment of phase 1 of the Sandwatch project

While the students were working on Small Islands Voice drama presentations (described in Chapter 4) the teachers divided into three small groups to evaluate the Sandwatch project to date. A series of guidelines were prepared for the group discussions, see Annex VI. The results from the individual groups have been integrated below.

The advantages of the Sandwatch project were:

- the beach provides a learning environment that cannot be duplicated and students enjoy working outside the classroom
- students acquire scientific knowledge by applying specific data collection and analysis methods. The activities in the Sandwatch project have the potential to be integrated over the entire curriculum and thus improve the learning experience for students. Some of the students taking part in standard examinations organised by the Caribbean Examinations Centre (CXC) have used their Sandwatch project activities as part of their school-based assessment programme which contributes to their 5th year grade.
- though the Sandwatch project students develop a personal relationship with the environment and their increased awareness means they no longer take the beach for granted and they understand the importance of reducing pollution
- the project has helped to improve student/teacher relationships
- the students and teachers feel pride in being part of a UNESCO project
- the project has provided for the training and involvement of other teachers – those beginning can easily learn from those already involved in the project
- through regional workshops such as this one, students learn about other countries

The disadvantages of the Sandwatch project were:

- a lack of equipment and finances to run the project properly and insufficient time to raise funds
- there were some problems with the management of students in the field and sometimes students had improper attire
- the project resulted in an additional burden and extra work for the teachers
- there was no support or back-up system, so that when a teacher was moved or replaced activities stopped
- some Ministries of Education are very much focused on examinations and do not see the Sandwatch project as being good for test scores

The groups were also asked to identify the major problems encountered. The main problem identified was a lack of support and involvement from school principals and Ministries of Education. Some countries also identified a serious lack of communication of vital information from their National Commissions for UNESCO. Countries also mentioned inadequate or no financing was available for expenses such as transport to the beach, provision of snacks and drinks, and disposable gloves. Another problem related to people's expectations of UNESCO, in that as soon as people heard the project was supported by UNESCO they assumed that plenty of funding was available and there was no need for them to contribute. The need for providing continual support for projects such as Sandwatch was emphasised.

When asked whether the project should move into a phase 2, the implementation of community-based beach projects, the overall consensus was in favour of phase 2. However, this would require considerable external support. Phase 2 was also seen as being important in tying education to the real world. The phase 1 monitoring had shown the students some of the negative problems associated with their beaches, and it was now time to implement positive actions.

In order to successfully implement phase 2 of the Sandwatch project, support would be necessary from various sources:

- schools: administrative support from the principals and back-up support from other teachers
- community: acceptance of the project by parents, assistance with activities from the communities and non-governmental organizations, and financial support from the private sector
- National Commissions for UNESCO: liaison between the schools and Ministry of Education, financial and administrative support, access to their libraries and computers, assistance with holding national Sandwatch workshops for all the schools involved, a paid Sandwatch representative in each country to fully coordinate the project would be helpful
- UNESCO Regional Office: financial support, overall coordination, regular visits to provide a physical presence in the countries, monitoring of progress of the project, regional workshops

All the participants agreed on the usefulness of integrating the Sandwatch project activities across the curriculum. Some countries such as Cuba and Guyana were already doing this in the schools involved in the project. There was agreement that Sandwatch project activities could be integrated across the curriculum into social studies, sciences, mathematics, information technology, languages, and arts.

Widening the scope of Sandwatch to include more than a few selected schools in each country represents a considerable challenge. National workshops for other teachers combined with media coverage were among the ideas proposed.

Extending the scope from the beaches to rivers was another proposal.

Proposed activities for Phase 2 of the Sandwatch project

During another small group activity, students and teachers discussed ideas for phase 2 of the project – this involves the implementation of projects together with communities to improve a particular beach. A series of guidelines were prepared for the group discussions, see Annex VI. The results from the individual groups have been integrated below. (Table 1 shows the individual ideas put forward by each country)

- adopt-a-beach programmes
- clean-up campaigns and clearing drains
- encouraging correct disposal of garbage at beaches (bins, closing beaches at night)
- tree planting and other measures to reduce erosion
- lobbying governments against new beachfront development, especially foreign owned development, and loss of beach access
- encouraging enforcement of legislation
- involvement of communities and private business
- national workshops involving teachers from other schools
- preparation of videos
- websites
- media campaigns
- marches and rallies
- competitions to design posters and logos
- establish databanks

Table 1 Proposed activities for phase 2 of the Sandwatch project

Country	Proposed activities
Bahamas	Create awareness about the need for beach management; provision of beach facilities (toilets, rubbish bins, benches)
Barbados	Lobbying government agencies and holding town meetings to maintain public access to the beach and reduce foreign ownership of beachfront properties
British Virgin Islands	Involve all the primary and secondary schools in the adopt-a-beach programme; clean-up campaigns; science fairs
Cuba	Promote natural ways of conserving the beach e.g. tree planting; establish a data bank; media campaign; design a logo; provision of facilities such as rubbish bins
Dominica	Beach clean-ups; provision of rubbish bins, toilets; clearing drains; enforcement of legislation; rallies and marches; creation of websites; media campaigns

Dominican Republic	Promote natural ways of conserving the beach e.g. tree planting; establish a data bank; media campaign; design a logo; provision of facilities such as rubbish bins
Grenada	Beach clean-ups; provision of rubbish bins, toilets; clearing drains; enforcement of legislation; rallies and marches; creation of websites; media campaigns
Guyana	Effective disposal of garbage at the beach; closing beaches at night
Netherlands Antilles	Produce a video on the Sandwatch project for distribution to the schools
St. Kitts and Nevis	Beach clean-ups; provision of rubbish bins, toilets; clearing drains; enforcement of legislation; rallies and marches; creation of websites; media campaigns
St. Lucia	Reducing erosion with gabion baskets, tree planting and artificial reefs
St. Vincent and the Grenadines	Provision of garbage bins on beaches; preventing building on the beach through lobbying efforts
Trinidad and Tobago	Create awareness about the need for beach management; provision of beach facilities (toilets, rubbish bins, benches)
Cook Islands	Poster competitions to design a logo for the Sandwatch project; puppet shows to raise awareness on beach pollution issues; rubbish bin painting competitions
Palau	National Sandwatch project workshop for teachers; start activities on a pilot project basis with one school
Seychelles	Involve the school environmental clubs in the Sandwatch project; start activities at one school on a pilot project basis

Islands in the Caribbean which had not started phase 1 activities (British Virgin Islands, Netherlands Antilles and Trinidad and Tobago) discussed ways to start Sandwatch activities. They agreed that Phases 1 and 2 could be combined.

Proposed Sandwatch activities in islands in the Indian Ocean and Pacific regions

Seychelles plan to launch Sandwatch project activities in one pilot secondary school in 2003-2004 and provide the necessary equipment (water quality monitoring kits, tape measure, compass, stopwatch) and training in their use. Depending on the success of this pilot activity the project will be expanded to other schools in the country.

The Cook Islands plan to start with activities that do not require much equipment, such as simple observations of the beach. They plan to hold a workshop for Upper Primary School Teachers in 2003 to get started; and also to see how Sandwatch can be integrated into the Associated Schools Project Network. In the longer term they hope to see a national Sandwatch competition, and possibly a regional Pacific Sandwatch programme.

Palau, through the Environmental Educator at the Environmental Quality Protection Board, plans to start with a pilot project in Ngiwal. This school is located close to a beach. Most of the schools in Babeldaob could benefit from this programme, given that teachers are often starved for new information and activities, and given that the majority of villages and schools are adjacent to beaches. While beaches are not of great concern in Palau at the moment, pending development pressures indicate the need to focus on them early. In addition, the monitoring skills that students learn through this programme could be applied to other environments with more pressing concerns (such as mangroves). This means that the focus of the programme would likely be primary schools. The Environmental Quality Protection Board is also planning to hold an Environmental Educators' forum in 2003, at which time the Sandwatch project can be introduced and its applicability assessed.

CHAPTER 4 SMALL ISLANDS VOICE ACTIVITIES

One of the goals of the Second Regional Sandwatch Workshop was to present the Small Islands Voice project to the participating Caribbean countries, to obtain some initial input and to lay the foundation for their future involvement.

Small Islands Voice is an inter-regional project and involves islands in the Caribbean, Indian Ocean and Pacific regions. It was through cooperation with this project that representatives from Cook Islands and Palau in the Pacific and Seychelles in the Indian Ocean participated in the Second Regional Sandwatch Workshop.

Small Islands Voice

Small Islands Voice is an initiative started by UNESCO in early 2002. This project is all about people in small islands:

- exchanging their views on environment and development issues
- working together to solve their problems
- taking part in the Small Island Developing States' Programme of Action

Small Islands Voice seeks to overcome the isolation of small islands by building capacity and strengthening local, regional and inter-regional communication by:

- obtaining islanders' views on environment and development issues through meetings, opinion surveys, talk shows and other activities.

- These are supported by radio, television and print media
- encouraging young islanders to discuss environment and development issues among themselves using new technologies
 - debating these issues regionally and globally through internet-based discussions
 - identifying key issues emerging from these debates and channelling them back to the local level for action on-the-ground, and towards the global level, especially international programmes dealing with sustainable development of small islands

Further information about Small Islands Voice activities is available at www.smallislandsvoice.org

Three of the Caribbean islands represented at the workshop were already taking part in Small Islands Voice and they described some of their activities to the workshop participants. The students from Marigot Secondary School in Dominica outlined how they were taking part in the Small Islands Voice internet-based youth forum (www.sivyouth.org with username *view* and password *only*). One of the discussions in which they had been involved dealt with how to solve the problem of drug abuse.

Involvement in the Small Islands Voice youth forum was also one of the activities described by Mr. Herman Belmar of Bequia in St. Vincent and the Grenadines. The Bequia Community High School had prepared the lead article to launch this forum in September 2002. Students had learnt more about other countries' cultures and ways of life from this internet exchange than would have been possible from any textbook. As a result they had been motivated to include other schools in the youth forum. Other Small Islands Voice activities included radio shows and community meetings, a poster and slogan competition, and SCUBA training for students during the summer holidays. In St. Vincent and the Grenadines, Small Islands Voice (SIV) and Sandwatch activities were being combined. 'SIV is you, SIV is me, SIV is all of we'.

The workshop participants listened to a rap poem 'Mother Earth's Dying Cries' (<http://www.unesco.org/csi/smis/siv/SIVrap-poem.mp3>) and a promotional jingle (http://www.unesco.org/csi/smis/siv/SIV_jingle.mp3) prepared by St. Kitts and Nevis as part of their Small Islands Voice activities. The goal in St. Kitts and Nevis is to have Small Islands Voice become a household word, and to this end an opinion survey has been conducted. Discussions on the issues identified in the opinion survey are going to be broadcast live and call-in programmes conducted. Following the discussion phase, the goal is to move from talk to action.

Environment and development issues

Following this introduction, the workshop participants divided into small discussion groups to begin to identify and discuss the main issues of concern in the environment – development arena in their countries. Youth and adults were grouped separately. The guidelines for the group discussions are included in

Annex VI.

Youth concerns

Teenage pregnancy and drug abuse were identified as the priority concerns by the two groups discussing youth issues. The full list of issues was as follows:

- teenage pregnancy
- drug abuse
- health care
- impacts of development on the environment e.g.
 - water shortages in Dominica,
 - pollution in St. Vincent and the Grenadines
 - solid waste disposal in Guyana
 - waste disposal in Trinidad and Tobago
 - whale conservation in Dominica
- social issues e.g. unemployment in Dominica
- communication limitations e.g. lack of information on projects like Small Islands Voice in Cuba

The two youth groups then worked on the preparation of dramatic skits to portray the problems of (1) teenage pregnancy, and (2) drug abuse. These were performed at the closing ceremony of the workshop where they were very well received. Indeed Mr. Felix Gregoire, Permanent Secretary in the Ministry of Education, Youth and Sports took up the issue of teenage pregnancy in his address at the closing ceremony.

What to do with pregnant students is an issue facing all the Ministries of Education in the region and a policy decision to allow pregnant students to continue their education is due by September 2003.

Adult concerns

The two adult groups also prioritised their concerns. The main priority concern was identified as a group of social issues comprising drug abuse, crime, violence and especially gang violence, and unemployment. It was felt that it was impossible to separate these issues. The complete list of issues was as follows:

- drug abuse, crime, violence especially gang violence, unemployment
- population pressures (Seychelles)
- reduction in the quality of life (Dominican Republic)
- trade embargo (Cuba)
- impacts of development on environment e.g. habitat destruction by extractive industries (Guyana), river pollution (Trinidad and Tobago), lack of land development control (Palau), foreign ownership of beachfront developments (Barbados)
- waste management (Cook Islands)

Suggested solutions are as follows:

- lobby governments and other organizations to teach ethics, morals and financial values at an early age
- improved education at all levels
- empower the youth to feel a sense of person and place, encourage skills and technical training, and promote self-employment
- encourage cohesion between school, home and communities
- establish drug rehabilitation centres
- in the short term, improve security at schools

CHAPTER 5 SANDWATCH: THE WAY AHEAD

The countries involved in the first phase of the Sandwatch project unanimously endorsed the project and lauded the benefits it provided. However, as discussed in Chapter 3 they noted some serious constraints they had experienced in trying to implement the first phase. In particular they recommended that administrative, organisational and financial support would be required from schools, parents, communities, the private sector, government agencies especially the Ministries of Education, UNESCO National Commissions, and the UNESCO regional office in order to effectively implement the second phase of the project.

Taking into account these recommendations, a draft plan of action for the second phase of Sandwatch has been prepared. While the Regional Office for UNESCO in Kingston, Jamaica will play an overall coordinating role for the Sandwatch project, the national Sandwatch coordinators, the National Commissions and UNESCO headquarters (ASPNet and CSI) all have vital functions to fulfil in the project.

The countries participating in the workshop recommended that a coordinator for the ASPNet Caribbean Sea Project should be appointed as soon as possible, and should have a visible presence in the countries. They also recommended that there should be a paid position for a Sandwatch coordinator in each country. The following recommendations were made with the understanding that they be shared among the organisations and countries involved.

Short term recommendations

Coordination

- designate the teachers attending the Second Regional Sandwatch Workshop as national Sandwatch coordinators
- encourage improved sharing of information between the Sandwatch national coordinators and their respective National Commissions, noting that communication is a two-way process requiring proactive action on the part of both parties

Activities

- countries starting on Phase 2 activities (Bahamas, Barbados, Cuba, Dominica, Dominican Republic, Grenada, Guyana, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines) prepare and submit their plans for the implementation of Phase 2 activities to the UNESCO Kingston Office
- countries just getting started on Phase 1 activities (British Virgin Islands, Netherlands Antilles, Trinidad and Tobago) prepare and submit their plans for the implementation of Phase 1 monitoring to the UNESCO Kingston Office
- contact be made with the National Commissions of those countries which did not attend the Second Regional Sandwatch Workshop (Antigua and Barbuda, Aruba, Belize, Costa Rica and Jamaica) to determine whether there is still sufficient interest to merit their continued involvement in the Sandwatch project

Funding

- national Sandwatch coordinators inform their National Commissions for UNESCO about the outcome and recommendations of the workshop so that they can assist with seeking further financial support for Sandwatch
- countries which are only just now getting started on Phase I activities (British Virgin Islands, Netherlands Antilles and Trinidad and Tobago) seek funding for Sandwatch equipment from UNESCO and other sources including the private sector. (One set of equipment costs US\$ 250-300)

Publications and awareness material

- report on the Second Regional Sandwatch Workshop prepared and distributed
- Sandwatch methods manual, prepared in 2001, updated for publication
- a brochure for promotion of the Sandwatch project designed with input from the countries involved in Sandwatch
- competition held for a Sandwatch logo
- 2000 copies of the Sandwatch poster printed and distributed
- national Sandwatch coordinators send copies of their workshop presentations and reports to the UNESCO Kingston Office

Longer term recommendations

Activities

- countries carry out Phase 1 and 2 activities
- future regional workshops could consider ways to integrate Sandwatch project activities across the school curriculum
- Starting in 2005, conduct assessments of some of the Phase 2 projects through inter-country exchanges

- conduct a Regional Sandwatch Workshop (late 2005/early 2006) to assess the overall impact of Phases 1 and 2, and to consider sustainable ways in which the scope of the project can be expanded

Funding

- countries seek funding from UNESCO sources (Participation Programme funds, Kingston Office and Headquarters) and especially from other sources (governmental and private sector) to implement phase 1 and 2 activities effectively

Publications and awareness material

- create and regularly update a website for the Sandwatch project
- print and distribute copies of the published Sandwatch methods manual
- print and distribute a promotional brochure for the Sandwatch project

Concluding remarks

The Sandwatch project has tremendous potential to preserve beach resources and to make science come alive for school students – not only in the Caribbean – but also in the Indian Ocean and Pacific regions as well. The discussions and output of this workshop have clearly illustrated what teachers and students can do with very limited resources. With improved coordination and communication among the countries and the organising bodies, and some increased financial input, the potential of this project is enormous – to provide for inter-cultural exchange and peace building initiatives; to increase interest in science among students; and to reduce pollution and safeguard beach resources.

Annex I

Country representatives at the First Regional Sandwatch Workshop, St. Lucia 31st May to 2nd June 2001

Antigua and Barbuda

Ms. Stacy Corbett, Bolan's Primary School, Bolan's Village, St. Mary's Parish, Antigua and Barbuda

Aruba

Mr. Sjoerd Van Loon, Colegio Cristo Rey, Brazil, Aruba

Bahamas

Mr. Hamblin Newbold, Ministry of Education, Youth and Sports, P.O. Box 3913, Shirley Street, Nassau, Bahamas

Barbados

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Annex II**Programme for the Second Regional Sandwatch Workshop,
Portsmouth, Dominica, 7-9th July 2003*****Sunday 6th July 2003***

Students and teachers arrive and set up their exhibits and displays

Registration of participants

Monday 7th July 2003

09.00

Opening ceremony

National anthem
Welcome address by the Secretary-General, Dominica National Commission for UNESCO, Ms. Alexandra Burton James
Address by the Mayor of Portsmouth, Mr. Julian Brewster
Musical Presentation
Remarks by Ms. Gillian Cambers, UNESCO Consultant
Remarks by Ms. OlatzLanda, Representative UNESCO Field Office - Jamaica
Musical presentation
Short address by Ms. O'Brien, Ministry of Education, Sports and Youth Affairs
Vote of thanks by Ms. Kathleen George

09.45 Break

10.00 **Presentations on Sandwatch beach monitoring activities**
by student representatives from:
Dominica - Dublanc Primary School
Barbados – Coleridge and Parry School
Cuba - InstitutoPreuniversitarioVocacional de Ciencias Exactas 'Ernesto Gueuara'
Guyana – St. Rose's High School
Dominica – Salisbury Primary School
St. Vincent and the Grenadines – Bequia Community High School
Dominica Republic – LiceoSecundario Gaston F. Deligne
British Virgin Islands – British Virgin Islands High School

12.30 **Country 'snapshots' from Cook Islands and Palau in the Pacific**

13.00 Lunch

14.00 **Field activity – guided walk through the Cabrits National Park, followed by a tree planting activity at Glanvillia Beach, Portsmouth**

Tuesday 8th July 2003

08.30 **Planning for Phase 2 of the Sandwatch project 'Implementation of beach improvement projects'**
Students and teachers break into five small groups to discuss ideas for Phase 2 Sandwatch activities, following which they present ideas to the entire plenary group

10.30 Break

11.00 **Presentations on Sandwatch beach monitoring activities continued**

by student representatives from:
Bahamas – Hope Town Primary School, Abaco
Grenada – Anglican High School
St. Kitts and Nevis – Sandy Point High School
St. Lucia – St. Josephs Convent Secondary School
Trinidad and Tobago - Mayaro Government Primary School
Dominica – Portsmouth Secondary School

12.30 Country ‘snapshots’ from Netherlands Antilles and Seychelles in the Indian Ocean

13.00 Lunch

14.00 **Field activity - whale watching boat trip**

Wednesday 9th July 2003

08.30 Small Islands Voice project

Introduction to the Small Islands Voice project by representatives from Puerto Rico, Dominica, St. Kitts and Nevis, and St. Vincent and the Grenadines

09.30 Issues of concern

Youth

Students break into small groups and discuss their concerns about environment and development

Adults

Teachers and others break into small groups and discuss their concerns about environment and development

10.30 Break

11.00 Students and adults present the findings from the group session to the entire plenary group

11.30 Drama presentations (students)

Students work in groups on preparation of small dramatic skits to demonstrate one or more of the issues they are concerned about as Caribbean youth

Evaluation and long-term strategy for the Sandwatch project (teachers)

Teachers break into groups to evaluate the Sandwatch project and to discuss implementation of Phase 2 and strategies for widening the scope of Sandwatch to include more schools in each country

13.00 Lunch

- 14.00 **Drama presentations continued**
 Students continue work on their dramatic skits and practice for the afternoon's performance
- Evaluation and long-term strategy for the Sandwatch project continued**
 Teachers complete the strategy session and prepare their findings for presentation at the closing ceremony
- 16.00 **Closing ceremony**
 National anthem
 Welcome address by the Secretary-General, Dominica National Commission for UNESCO, Ms. Alexandra Burton James
 Drama presentation by student representatives
 Presentation on the future of the Sandwatch Project by Mr. Andy Paul, Trinidad and Tobago
 Dramatic presentation by student representatives
 Remarks by Ms. OlatzLanda, Representative, UNESCO Field Office, Jamaica
 Drama presentation 'Up from the Deep' by Ms. Racquel Phillips and Mr. Michael Peniston, St. Vincent and the Grenadines
 Address by Mr. Stephenson Hyacinth, Chief Education Officer, Ministry for Education, Sports and Youth Affairs
 Address by Mr. Felix Gregoire, Permanent Secretary, Ministry of Education, Sports and Youth Affairs
 Cultural presentation by Dominican youth cultural group
 Award ceremony
 Flag ceremony
 Vote of thanks by Portsmouth Secondary School, Dominica
- 17.45 Refreshments
- Dismantle exhibits

Thursday 10th July 2003

Participants depart
 Sandwatch project methods demonstration for countries new to the project

Annex III
Participants at the Second Regional Sandwatch Workshop, Dominica, July 2003

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Annex IV

Guidelines for judging Sandwatch presentations and exhibits

1. Judging categories

In view of the age range of the students involved, two categories are suggested: primary school students 8-11 years, and secondary school students 12-16 years.

3. Judging criteria

Judges will be asked to assess the verbal and display presentations from each country out of a total of 60 points, according to the following criteria:

Verbal skills (out of a total of 10 points)

- Delivery of presentation (poise, emphasis, audience eye-contact)
- Content of presentation (clarity, logic, understandable material)
- Keeping within time allocation (10-15 minutes)

Exhibition display (out of a total of 10 points)

- Clarity of the material displayed
- Use of pictures, photos and graphs
- Display of data
- Summary of results/findings

Methodology (out of a total of 10 points)

- Description of activities undertaken and methods used

Data collection (out of a total of 10 points)

Qualitative information/data collected (e.g. observations)

Quantitative information/data collected (e.g. numbers of different types of beach debris, measurements of beach width)

Data analysis (out of a total of 10 points)

Ways in which the data collected (both qualitative and quantitative) was used to arrive at conclusions

Involvement of other persons (out of a total of 10 points)

Ways in which other people (besides the participating students) have involved/or plan to involve other persons, e.g. parents, other schools, people in the community, media.

Annex V

Schools taking part in Phase 1 of the Sandwatch project

Bahamas

Hope Town Primary School, Abaco – fully involved in Phase 1

Barbados

Coleridge and Parry School – fully involved in Phase 1

Garrison Secondary School – students trained, monitoring of beach debris and turtles started but teacher left, so activities suspended

Ellerslie Secondary School – students and teacher trained, monitoring did not get started

St. James Secondary School – students and teacher trained, monitoring did not get started

British Virgin Islands

British Virgin Islands High School – no training had been provided, but the student presented some other community-based beach activities

Cuba

Instituto Preuniversitario Vocacional de Ciencias Exactas ‘Ernesto Guevara’ Santa Clara – fully involved in phase 1

Instituto Preuniversitario Vocacional de Ciencias Exactas ‘Frederico Engles’ Pinar del Rio – fully involved in phase 1

Escuela Primaria ‘Guerillero Heroica’ Ciudad Habana – fully involved in phase 1

Escuela de Arte – fully involved in phase 1

Escuela Secundaria Basica – fully involved in phase 1

Dominica

Dublanc Primary School - fully involved in phase 1

Salisbury Primary School - fully involved in phase 1

Portsmouth Secondary School - fully involved in phase 1

Colibistrie Primary School - fully involved in phase 1

Colihaut Primary School – trained and started monitoring, but were forced to stop when the beach was replaced with a boulder revetment

Dominican Republic

Twelve schools cooperated at five different beaches, all the schools were fully involved in phase 1:

Liceo de Educación Media ‘Pedernales’, Pedernales

Centro Educativo ‘Las Américas’, Santo Domingo

Liceo de Educación Media ‘Ernestina Tejada’, Villa Fundación

Liceo de Educación Media ‘Francisco Gregorio Billini’, Bani

Liceo de Educación Media ‘Gastón F. Deligne’, San Pedro de Macorís

Colegio ‘San Pedro Apóstol’, San Pedro de Macorís

Liceo de Educación Media ‘Sor Ana Nolan’ Consulo, San Pedro de Macorís

Colegio Santa Rosa de Lima, Santo Domingo

Liceo de Educación Media ‘AristedesGarcíaMella’, La Romana

Colegio Santa Teresita, Santo Domingo

Liceo de Educación Media ‘San Rafael’ San Rafael del Yuma

Liceo de Educación Media ‘John F. Kennedy’, Boca de Yuma

Grenada

Anglican High School – fully involved in phase 1

Guyana

St. Rose’s High School - fully involved in phase 1

Bartica Government Secondary School - fully involved in phase 1 (focused on river monitoring)

Two Mile Primary School - fully involved in phase 1 (focused on river monitoring together with Bartica Government Secondary School)

St. Kitts and Nevis

Sandy Point High School - fully involved in phase 1

Irish Town primary School - fully involved in phase 1

Charlestown Secondary School – students and teachers trained, monitoring did not get started

St. Lucia

St. Josephs Convent Secondary School - fully involved in phase 1

Castries Comprehensive School – students and teacher trained, but teacher left

Micoud Secondary School – students and teachers trained, monitoring started 2003

Glendon Mason Secondary School – students and teacher trained, monitored water quality

Soufriere Comprehensive School – students and teacher trained, monitoring did

not get started

St. Vincent and the Grenadines

Bequia Community High School - fully involved in phase 1

7th Day Adventist Secondary School - fully involved in phase 1 (work together with Bequia Community High School)

Union Island Secondary School – students and teacher trained, monitoring not yet started

Barroulie Secondary School - students and teacher trained, monitoring not yet started

Trinidad and Tobago

St. Josephs Convent Secondary School - students and teacher trained, monitoring not yet started

Point Fortin Senior Secondary School - students and teacher trained, monitoring not yet started

Mayaro Government Primary School - students and teacher trained, monitoring not yet started

Annex VI
Guidelines for discussion sessions

Small Group Session: Evaluation and long-term strategy for the Sandwatch project (teachers)

Appoint a leader and a reporter

1. Discuss and list the advantages (if any) to your school/students/country of Phase 1 of the Sandwatch project
2. Discuss and list the disadvantages (if any) to your school/students/country of Phase 1 of the Sandwatch project
3. What were the major problems encountered – prioritise these problems
4. Is it worthwhile proceeding to Phase 2 (implementation of projects)
5. Assuming the answer to question 4 is ‘yes’, what support will you need to implement Phase 2 from:
 - your school
 - your community
 - your UNESCO National Commission
 - UNESCO regional office/headquarters
6. Are there any aspects of Sandwatch that can be integrated into the

school curriculum? Is this necessary?

7. How can we widen the scope of Sandwatch beyond your school, or beyond the two or three schools involved in your country

Small group session: Planning for Phase 2 of the Sandwatch project, 'Implementation of beach improvement projects' (teachers and students)

Appoint a leader and a reporter – both students.

Then each person in the group thinks of a project they would like to see happen to improve a beach in their home country and writes it down

Start a group discussion along the following lines:

1. Discuss what sort of projects you would like to carry out to make your beaches better
2. What sort of resources (people, equipment, money etc.) will you need to implement the projects
3. How long will it take to implement these projects?
4. How will you organise the project (e.g. will there be a class committee? Will it meet after school or during lunch break?)
5. How to go about mobilising the resources back in your countries e.g. community meetings, fund raising activities
6. How will you determine the success of your project?

Small group session: Small Islands Voice - Issues of concern about environment and development

(Separate groups for student and teachers)

Appoint a leader and a reporter

Then each person in the group thinks of one problem in their home country that they are really concerned about

Start a group discussion along the following lines:

1. Discuss the problems and prioritise them
2. Take the first problem on the list and see if there is anything you could do as a school or as a group to solve or help reduce this problem
3. Repeat for the next issue on the list

Small group session: Small Islands Voice - preparation of dramatic skits to portray issues (students)

1. Select one of the problems or issues discussed in the earlier group session
2. Prepare a short drama piece (3-5 minutes long) illustrating this issue (involve all members of the group in the drama piece)
3. Practise the drama piece for presentation at the closing ceremony