

PRE-CONGRESS WORKSHOP  
**SCIENCE CENTRES FOR AFRICA: BUILDING CAPACITY**

Fountains Hotel, 1 St Georges Mall, Cape Town 8001, South Africa

T +27 (0)21 443 1100, F +27 (0)21 425 6070

2-4 September 2011

Check [www.6scwc.org](http://www.6scwc.org) for updates and further information on this draft programme.

## OVERVIEW

At the opening of the 2009 African Science Communication Conference, Professor Mohamed Hassan of the Academy of Sciences for the Developing World (TWAS) stated "Africa's sustainability problems can only be solved by science-based solutions, and effective communication must play a key role in this." His key recommendations for strengthening science communication in Africa included creating at least one science centre in each African country to bring science closer to society.

This pre-congress workshop is part of a strategic, long-term programme to develop the future leaders and managers of the science centre field in Africa. The programme has been designed for participants from African nations.

Sponsored by the South African Government Department of Science and Technology (DST) and UNESCO, and co-convened by the South African Agency for Science and Technology Advancement (SAASTA), the Southern African Association of Science and Technology Centres (SAASTEC) and the North Africa and Middle East Science Centers Network (NAMES), this workshop will be supported by an international consortium of science centre networks and institutions.

Plenary sessions will be conducted in English. Where appropriate, individual mentoring will be facilitated in other major languages of African countries.

In this highly interactive workshop, individuals and small groups will work with African and international facilitators to develop a roadmap to establish or further develop a science centre initiative in their country. The workshop will focus on best practices emerging from local African science centres, and from science centres around the world. Workshop outcomes will be reported to the Congress through the session *From first steps to next steps: building African capacity in the science centre field*. The outcomes will be communicated to African governments, to science centre networks and to others with the purpose of stimulating follow-up initiatives and further capacity building.

## WORKSHOP CONTRIBUTORS

### Chairman

Prof Mohamed H.A. Hassan, Co-Chair, IAP: The Global Network of Science Academies; Past President, African Academy of Sciences; Past Executive Director, TWAS: The Academy of Sciences for the Developing World

### Convenors

Shadrack Mkansi, South African Agency for Science and Technology Advancement  
Julie Cleverdon, Chair, Southern African Association of Science and Technology Centres  
Mijbil Almutawa, President, North Africa and Middle East Science Centres Network

### Sponsor Representatives

Isaac Ramovha, South African Department of Science and Technology  
Dr Yoslan Nur, UNESCO

### Programme Coordinator

Brenton Honeyman, Questacon – Australia's National Science and Technology Centre

### Module Programme Convenors

Prof Mike Gore, Australian National Centre for the Public Awareness of Science, Australian National University  
Prof Sue Stockmayer, Australian National Centre for the Public Awareness of Science, Australian National University  
Graham Walker, Australian National Centre for the Public Awareness of Science, Australian National University

### Session Speakers and Facilitators

Prof Graham Durant, Questacon – Australia's National Science and Technology Centre  
Michael Ellis, Sci-Bono Discovery Centre, South Africa  
Derek Fish, Unizul Science Centre, South Africa  
Rudi Horak, Sci-Enza, South Africa  
Erik Jacquemyn, Technopolis – The Flemish Science Centre, Belgium  
Bafedile Kgwadi, South African Agency for Science and Technology Advancement  
Alejandra León-Castellá, CIENTEC, Costa Rica  
Thami Mangena, Sci-Bono Discovery Centre, South Africa  
Sivuyile Manxoyi, South African Astronomical Observatory  
Busi Maqubela, AcelorMittal Science Centre, South Africa  
Ronen Mir, MadaTech - The Israel National Museum of Science  
Mondli Mnguni, Mondli Science Centre, South Africa  
Walter Staveloz, International Relations, Association of Science-Technology Centers Inc.

### Science Centre Network Lead Representatives

Dr Mamoru Mohri, President, ASPAC  
Anthony (Bud) Rock, CEO, ASTC  
Erik Jacquemyn, Board Member, ECSITE  
Mijbil Almutawa, President, NAMES  
Ganga Rautela, Director General, NCSM  
Joaquin Fargas, Executive Director, RedPOP  
Julie Cleverdon, Chair, SAASTEC

## **WORKSHOP PARTICIPANTS**

The pre-congress workshop will cater for up to 90 participants who have been nominated in response to invitations to African governments and institutions or who have registered to participate. Participants will be required to also register and participate in the 6<sup>th</sup> Science Centre World Congress, 4-8 September 2011. The 3 day workshop and the 4 day congress will provide participants with an intensive encounter with the latest thinking in the science centre field in Africa and around the world.

The workshop will support participants to develop an action plan setting out next steps to establish or further develop a science centre initiative in their country.

Selected participants will need to prepare in advance, ready to share on the first morning of the workshop, the context, needs and opportunities for science centres in their local community and country.

## **WORKSHOP PROGRAMME**

The programme will be structured to cater for three participant groups (Group 1, Group 2 and Group 3) to ensure that participants benefit according to their level of experience in science centres, and to ensure the effectiveness of participant learning through individual and group mentoring.

## FRIDAY 2 SEPTEMBER 2011

### *The relevancy and diversity of science centres: responding to local needs*

#### **07:30 to 08:45 Registration**

#### **08:45 to 09:15 Session 1 – Plenary welcome and opening**

##### **Session facilitator:**

Julie Cleverdon, Chair, SAASTEC

##### **Workshop Chairman's Opening Address:**

Mohamed H.A. Hassan, Workshop Chairman and President, African Academy of Sciences

#### **09:15 to 10:30 Session 2 – Plenary session**

##### **Session facilitator:**

Walter Staveloz, International Relations, Association of Science-Technology Centers Inc.

##### **Panel: Setting the scene: what is a science centre?**

Panel speakers bring their perspective, illustrated by case studies, of the unique value proposition that a science centre brings to its community. Through these perspectives and case studies, various models of delivering science centre experiences will be shared. The key question for workshop participants is "What model for delivering science centre experiences would be appropriate to address the needs in your community?" Panel presentations will be followed by Q&A and interactive panel discussion.

##### **Panel speakers:**

Prof Graham Durant, Questacon – Australia's National Science and Technology Centre

Isaac Ramovha, Department of Science and Technology, South Africa

Alejandra Leon-Castella, CIENTEC, Costa Rica

Erik Jacquemyn, Technopolis – The Flemish Science Centre, Belgium

Rudi Horak, Sci-Enza, South Africa

Ronen Mir, MadaTech - The Israel National Museum of Science

#### **10:30 to 11:00 Morning tea**

##### **11:00 – 11:10**

##### **Presentation: UNESCO and Science Popularisation**

Yoslan Nur, UNESCO

#### **11:10 to 12:30 Session 3 – Group session: Mapping the needs**

Participants in Group 1 move to one room, Group 2 to a second room and Group 3 to a third room. For Groups 1 and 2, the facilitator explains the mapping task, followed by participants sharing a status report outlining the context, needs and opportunities for science centres in their country/community. Common areas of need are identified and reported back to the group in summary form. A map/hierarchy of needs across countries is prepared as summaries are shared. Group 3 participants will work with international facilitators to continue the conversation from Session 2.

##### **Group facilitators:**

Group 1: Alejandra Leon-Castella, CIENTEC, Costa Rica; Bafedile Kgwadi, South African Agency for Science and Technology Advancement

Group 2: Brenton Honeyman, Questacon – Australia's National Science and Technology Centre

Group 3: Erik Jacquemyn, Technopolis – The Flemish Science Centre, Belgium; Graham Durant, Questacon – Australia's National Science and Technology Centre; Ronen Mir, MadaTech - The Israel National Museum of Science, Walter Staveloz, International Relations, Association of Science-Technology Centers Inc.

#### **12:30 to 13:30 Lunch**

## Science centre experiences: engaging visitors through exhibits and programmes

At this point in the program, Groups 1, 2 and 3 start to rotate through a program of three modules. This arrangement will assist in providing interactive experiences appropriate to individual/group experience.

### 13:30 to 14:45 Session 4 – Module Programme

#### **Group 1: Module A (first half) Public awareness and informal learning in science**

During the first half of this module, Group 1 participants will be introduced to international trends, expectations and cultural issues, including in Africa, in engaging the public in informal learning in science.

##### **Facilitators for the first half:**

Prof Sue Stockmayer, Australian National Centre for the Public Awareness of Science, Australian National University; Rudi Horak, Sci-Enza, South Africa; Sivuyile Manxoyi, South African Astronomical Observatory

#### **Group 2: Module B (first half) Exhibits, outreach and “science in a bakkie”**

During the first half of this module, Group 2 participants will be introduced to principles of effective exhibit, outreach and “science in a bakkie” experiences.

##### **Facilitators for the first half:**

Prof Mike Gore, Australian National Centre for the Public Awareness of Science, Australian National University; Thami Mangena, Sci-Bono Discovery Centre, South Africa

#### **Group 3: Module C (first half) Science shows and demonstrations**

During the first half of this module, Group 3 participants will discuss principles of effective design and presentation of science shows and demonstrations.

##### **Facilitator for the first half:**

Graham Walker, Australian National Centre for the Public Awareness of Science, Australian National University; Bafedile Kgwadi, South African Agency for Science and Technology Advancement

### 14:45 to 15:00 Afternoon tea

### 15:00 to 17:00 Session 4 – Module Programme (continued)

#### **Group 1: Module A (second half) – Teacher professional development**

During the second half, Group 1 participants will undertake a practical workshop to illustrate effective principles for interactive teaching-learning in science.

##### **Facilitators for the second half:**

Prof Mike Gore, Australian National Centre for the Public Awareness of Science, Australian National University; Thami Mangena, Sci-Bono Discovery Centre, South Africa

#### **Group 2: Module B (second half) Observation of interactions with exhibits**

During the second half of this module, Group 2 participants will undertake a practical exercise in observing visitor interactions with hands-on exhibits and discuss their observations.

##### **Facilitators for the second half:**

Prof Sue Stockmayer, Australian National Centre for the Public Awareness of Science, Australian National University; Rudi Horak, Sci-Enza, South Africa; Sivuyile Manxoyi, South African Astronomical Observatory

#### **Group 3: Module C (second half) Science shows and demonstrations**

During the second half of this module, Group 3 participants will: review the available research on science shows; consider good and bad demonstrations; and undertake a group challenge.

##### **Facilitators for the second half:**

Graham Walker, Australian National Centre for the Public Awareness of Science, Australian National University; Michael Ellis, Sci-Bono Discovery Centre, South Africa; Mondli Mnguni, Mondi Science Centre, South Africa; Bafedile Kgwadi, South African Agency for Science and Technology Advancement

**19:00 to 22:00 Session 5: Pre-Congress Workshop Dinner**

**Fountains Hotel, 1 St Georges Mall, Cape Town**

This dinner is a formal part of the Pre-Congress Programme and all participants are expected to attend. The dinner features interactive tabletop activities and science busking.

## SATURDAY 3 SEPTEMBER 2011

### 08:45 to 10:00 Session 6 – Module Programme

#### **Group 1: Module B (first half) Exhibits, outreach and “science in a bakkie”**

During the first half of this module, Group 1 participants will be introduced to principles of effective exhibit, outreach and “science in a bakkie” experiences.

##### **Facilitators:**

Prof Mike Gore, Australian National Centre for the Public Awareness of Science, Australian National University; Thami Mangena, Sci-Bono Discovery Centre, South Africa; Busi Maqubela, AcelorMittal Science Centre, South Africa

#### **Group 2: Module C (first half) Science shows and demonstrations**

During the first half of this module, Group 2 participants will be introduced to the principles of effective design and presentation of science shows and demonstrations and to the research available on science shows.

##### **Facilitators for the first half:**

Graham Walker, Australian National Centre for the Public Awareness of Science, Australian National University

#### **Group 3: Module A (first half) Public awareness and informal learning in science**

During the first half of this module, Group 3 participants will consider recent developments in international trends, expectations and cultural issues, including in Africa, in engaging the public in informal learning in science.

##### **Facilitators for the first half:**

Prof Sue Stockmayer, Australian National Centre for the Public Awareness of Science, Australian National University; Rudi Horak, Sci-Enza, South Africa; Bafedile Kgwadi, South African Agency for Science and Technology Advancement

### 10:00 to 10:30 Morning tea

### 10:30 to 12:30 Session 6 – Module Programme (continued)

#### **Group 1: Module B (second half) Observation of interactions with exhibits**

During the second half of this module, Group 1 participants will undertake a practical exercise in observing visitor interactions with hands-on exhibits and discuss their observations.

##### **Facilitators for the second half:**

Prof Sue Stockmayer, Australian National Centre for the Public Awareness of Science, Australian National University; Thami Mangena, Sci-Bono Discovery Centre, South Africa; Busi Maqubela, AcelorMittal Science Centre, South Africa

#### **Group 2: Module C (second half) Science shows and demonstrations**

During the second half of this module, Group 2 participants will observe a science show; consider good and bad demonstrations; and undertake a group exercise on using props.

##### **Facilitators for the second half:**

Graham Walker, Australian National Centre for the Public Awareness of Science, Australian National University; Michael Ellis, Sci-Bono Discovery Centre, South Africa; Mondli Mnguni, Mondi Science Centre, South Africa

#### **Group 3: Module A (second half) – Teacher professional development**

During the second half, an international panel will share their experience in interactive teaching-learning in science.

##### **Facilitators for the second half:**

Prof Mike Gore, Australian National Centre for the Public Awareness of Science, Australian National University; Rudi Horak, Sci-Enza, South Africa; Alejandra León-Castellá, CIENTEC, Costa Rica; Bafedile Kgwadi, South African Agency for Science and Technology Advancement

## 12:30 to 13:30 Lunch

## 13:30 to 14:45 Session 7 – Module Programme

### **Group 1: Module C (first half) Science shows and demonstrations**

During the first half of this module, Group 1 participants will be introduced to the principles of effective design and presentation of science shows and demonstrations and to the research available on science shows.

#### **Facilitators for the first half:**

Graham Walker, Australian National Centre for the Public Awareness of Science, Australian National University

### **Group 2: Module A (first half) Public awareness and informal learning in science**

During the first half of this module, Group 2 participants will be introduced to international trends, expectations and cultural issues, including in Africa, in engaging the public in informal learning in science.

#### **Facilitators for the first half:**

Prof Sue Stocklmayer, Australian National Centre for the Public Awareness of Science, Australian National University; Rudi Horak, Sci-Enza, South Africa; Sivuyile Manxoyi, South African Astronomical Observatory

### **Group 3: Module B (first half) – Outreach and evaluation**

During the first half of this module, Group 3 participants will consider best practice and share their experience of outreach and evaluation.

#### **Facilitators for the first half:**

Prof Mike Gore, Australian National Centre for the Public Awareness of Science, Australian National University; Thami Mangena, Sci-Bono Discovery Centre, South Africa; Busi Maqubela, AcelorMittal Science Centre, South Africa; Bafedile Kgwadi, South African Agency for Science and Technology Advancement

## 14:45 to 15:00 Afternoon Tea

## 15:00 to 17:00 Session 7 – Module Programme (continued)

### **Group 1: Module C (second half) Science shows and demonstrations**

During the second half of this module, Group 1 participants will observe a science show; consider good and bad demonstrations; and undertake a group exercise on using props.

#### **Facilitators for the second half:**

Graham Walker, Australian National Centre for the Public Awareness of Science, Australian National University; Michael Ellis, Sci-Bono Discovery Centre, South Africa; Mondli Mnguni, Mondi Science Centre, South Africa

### **Group 2: Module A (second half) – Teacher professional development**

During the second half, Group 2 participants will undertake a practical workshop to illustrate effective principles for interactive teaching-learning in science.

#### **Facilitators for the second half:**

Prof Sue Stocklmayer, Australian National Centre for the Public Awareness of Science, Australian National University; Thami Mangena, Sci-Bono Discovery Centre, South Africa; Busi Maqubela, AcelorMittal Science Centre, South Africa; Sivuyile Manxoyi, South African Astronomical Observatory

### **Group 3: Module B (second half) – Exhibits, outreach and evaluation**

During the second half of this module, Group 3 participants will have the option of: (1) Walk and talk around exhibits with Mike Gore; (2) Small group informal discussions; or (3) an early finish to the day's programme.

#### **Facilitator for the second half:**

Prof Mike Gore, Australian National Centre for the Public Awareness of Science, Australian National University; Bafedile Kgwadi, South African Agency for Science and Technology Advancement

## SUNDAY 4 SEPTEMBER 2011

### *Making science centres work: planning a new centre or further developing an existing one*

**08:45 to 10:30 Free time for strategic planning**

**10:30 to 11:00 Morning tea**

#### **11:00 to 12:30 Session 8 – Plenary session: Issues in developing a science centre**

A panel of facilitators share their key learnings about establishing or developing a science centre with a focus on not only what worked well, but also on what didn't work well. This is followed by Q&A and interactive discussions between panelists.

#### **Session facilitator:**

Brenton Honeyman, Questacon – Australia's National Science and Technology Centre

#### **Session panelists:**

Mijbil Almutawa, The Scientific Center of Kuwait

Prof Graham Durant, Questacon – Australia's National Science and Technology Centre

Derek Fish, Unizul Science Centre, South Africa

Prof Mike Gore, Australian National Centre for the Public Awareness of Science, Australian National University

Rudi Horak, Sci-Enza, South Africa

Erik Jacquemyn, Technopolis – The Flemish Science Centre, Belgium

Alejandra León-Castellá, CIENTEC, Costa Rica

Ronen Mir, MadaTech - The Israel National Museum of Science

**12:30 to 13:30 Lunch**

#### **13:30 to 14:45 Session 9 – Developing a strategic plan**

As individuals, or in small groups, participants, with help from African and international facilitators, develop a draft strategic plan for the development of a science centre for their community, taking into account the context and opportunities in their country, or to further develop an existing institution. The plan will include steps that are achievable and realistic in terms of their country's resources and capacity.

**14:45 to 15:00 Afternoon tea**

#### **15:00 to 15:30 Session 10 – Plenary session: Joining the worldwide science centre community**

This session will share how the worldwide science centre community might assist the ongoing development of science centres throughout Africa. This might include possible mechanisms to link African science centres with existing networks, centres or institutions in other parts of the world to help in their establishment and further development. Representatives from major networks will affirm their support from around the world.

#### **Session facilitators:**

Julie Cleverdon, Chair, Southern African Association of Science and Technology Centres

Walter Staveloz, International Relations, Association of Science-Technology Centers Inc.

#### **Session speaker:**

Prof Graham Durant, Questacon – Australia's National Science and Technology Centre

#### **Network representatives:**

Dr Mamoru Mohri, President, ASPAC

Anthony (Bud) Rock, CEO, ASTC

Erik Jacquemyn, Board Member, ECSITE

Mijbil Almutawa, President, NAMES

Ganga Rautela, Director General, NCSM

Joaquin Fargas, Executive Director, RedPOP

Julie Cleverdon, Chair, SAASTEC

**15:30 to 15:45 Session 11 – Closing plenary session**

**Closing remarks by Workshop Chairman:**

Prof Mohamed H.A. Hassan, Workshop Chairman and Co-Chair, IAP: The Global Network of Science Academies

Version date: 25 August 2011

Brenton Honeyman