ANNEXURE 2

Accreditation Criteria for the Promotion of Excellence in a National Network of Science Centres

ANNEXURE 2: CONTENTS

INTRODUCTION

This document contains the accreditation criteria and guidelines for self-evaluation for inclusion in a national network of science centres in South Africa.

The criteria build on a few core values and concepts:
1. Impact (outreach, individual).
2. Capacity building (skills development, promoting science, technology, engineering and mathematics (STEM)).
3. Sustainability (forward thinking).
4. Quality (measurement).

The criteria aim to provide answers to the following overarching questions:
1. What is the science centre trying to do?
2. How is the science centre trying to do it?
3. How does the science centre know that it works?
4. How does the science centre bring about improvements where needed?

This document is divided into two sections. Section A covers the organisational profile and Section B covers the five criterion areas. Both sections will form part of the self-evaluation report, which will be used during the site visit.

The organisational profile (the centre and its context, priorities, relationships and challenges) forms the basis of the application for interim registration. This will be used during the initial application review of every science centre.

The five areas in Section B are as follows:
1. Governance and planning.
2. Service offering.
3. People.
4. Communication.
5. Quality management and benchmarking.

Each area has several topics with guiding questions to assist the science centre in describing how it meets the requirements for each criterion. Not all questions will be relevant to every science centre, but if a science centre deems a question irrelevant, it should provide reasons for this.

During the site visit, science centres will have to provide supporting documents as evidence of statements made in the self-evaluation report.

The organisational profile provides a snapshot of your science centre and the key components of your operational, relational and strategic realities.

1. Name, location and ownership

Describe your science centre by answering the following:

1. What is the name of your science centre?
2. Where is your science centre located?
3. Why is it located there?
4. Who owns the premises and/or facility?
5. Who sponsors the activities of the science centre?
6. What is the total size/floor space of the premises and/or facility?
7. Specify the allocation of size/floor space in terms of exhibits, training, laboratories, storing, administration, auditorium, etc.

2. Governance system and organisational structure

Describe the structures you have in place to govern and manage your science centre by answering the following questions:

1. Who serves on the board of directors?
2. To whom and how often does the board report?
3. Describe the management structure of your science centre.
4. To whom and how often does this structure report?

3. Vision, mission and purpose

Describe the key strategic drivers of your science centre by answering the following questions:

1. What is your stated vision?
2. What is your stated mission?
3. Is your science centre part of a larger organisation?
4. If so, how do your vision and mission align with those of the larger organisation?
5. What is your purpose as a science centre?

6. Alignment with the goals of the network of science centres in South Africa (fitness for purpose)
    a. Describe how your science centre is contributing to the goals of the network of science centres in South Africa in terms of the following:
        i.   Identifying and nurturing young people's talent and potential in STEM.
        ii. Promoting science literacy among the youth and the population in general.
        iii. Enhancing learner participation and performance in STEM.
        iv. Providing young people with career education, particularly related to STEM.
7. Success in addressing the goals of the network of science centres in South Africa (fitness for purpose)
    a. Describe how you measure the success of your efforts to achieve the goals of the network of science centres in South Africa.
    b. Describe and where possible provide evidence of the impact of your efforts to achieve the goals of the network of science centres in South Africa in terms of the following:
        i.   Educators.
        ii. Learners.
        iii. Permanent staff.
        iv. Interns and volunteers.
        v.   Surrounding community.
        vi. General public.
        vii. Other stakeholders.
    c. Describe your plans to improve your efforts to achieve the goals of the network of science centres in South Africa.

4. Key relationships

Specify and describe the key relationships your science centre has by answering the following questions:

1. Identify all the science centre's key relationship groups e.g. sponsors, customers, partners, staff, visitors, interns and volunteers.
2. What should each identified group be informed about on a regular basis?
3. Specify the communication mechanisms you use to communicate with each identified group (e.g. meetings, reports, newsletters).
4. How often do you communicate with each group?

5. Outline of service offering

Describe the services offered by your science centre by answering the following questions:

1. What are the main services that you offer?
2. Who are the target audiences for each?
3. What are the key expectations from the audiences?
4. How do you ensure that the service you provide caters to these requirements and expectations?
5. How do you market and promote your services?
6. What makes your service offering different from that of other science centres?
7. How do you ensure the quality of your service offering (e.g. maintenance or programme reviews)?
8. How do you measure the success of your service offering?
9. How do you plan to improve your service in the future?
10. What percentage of your service offering can be categorised as outreach? (Outreach includes all services rendered beyond the facility and property of the science centre.)
11. In which areas do you do outreach and why there?

6. Competitive environment

Describe the competitive environment in which your science centre operates by answering the following questions:

1. Are you in a competitive environment for the following?
   a. Funding.
   b. Customers.
   c. Staff, volunteers and interns.
   d. Members, partners.
   e. Visitors.
   f. Visibility in the community.
   g. Media attention.
2. What is your advantage when competing to obtain the above?
3. How do you differentiate your science centre from other centres?

7. Outline of financial planning

Please provide the following documents for the past three years:

1. Annual business plan and budget.
2. Financial statements.
3. Audit reports.

1. GOVERNANCE AND PLANNING

The science centre plans for a sustainable future by taking its operational realities and responsibilities into consideration.

Comment on and provide evidence of how you focus on and develop in the areas of leadership, strategic planning, sustainability and future relevance, the regulatory environment, corporate governance and risk.

The questions below are intended to guide your response to demonstrate that you meet the criterion. They should be used as appropriate to your science centre, i.e. not all questions may be relevant, and you may in some instances wish to add to the list.

1.1 Leadership

Describe how you select, develop and manage leaders for your science centre.

1. How many individuals are there in the leadership team?
2. On what basis do you select members to the leadership team?
3. Describe how the leadership team of your centre demonstrates that they are fully committed to the vision of the centre.
4. Describe how the leadership encourages and promotes each of the following:
   a. Alignment to the centre's vision, mission and purpose.
   b. Customer service.
   c. Outreach.
   d. Quality.
   e. Recognition and development of talent.
   f. Active participation and performance.
   g. Organisational learning.
   h. Innovation.
   i. Fulfilling legal, ethical and societal responsibilities.
5. What impact has the leadership team had on the centre, the staff, the customers, stakeholders, the surrounding community and the implementation of the Youth into Science Strategy?
6. How do you ensure sustainability regarding the leadership of the centre (e.g. succession planning)?

7. How active is the leadership team in marketing and promoting the science centre?
8. How active is the leadership team in networking with all stakeholders?

1.2 Strategic planning

Describe how your science centre examines itself on a strategic level, looking at its current state in detail and making decisions for the future based on this information.

1. What are your key business, operational and human resource challenges and advantages?
2. What are your key challenges and advantages associated with organisational sustainability?
3. Have you ever done a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis of your science centre?
4. Describe the way forward for your science centre.

1.3 Sustainability and future relevance

Describe what your science centre has in place to ensure its existence and impact in five years' time.

1. Does your science centre have a consistent, sustainable income?
2. If so, how do you guarantee it?
3. If not, what are you doing to obtain a sustainable income?
4. Does your science centre have more than one income stream?
5. If so, please specify.
6. Are you staying abreast with technical and organisational innovations and implementing them where possible?
7. What do you think your science centre needs to be relevant in five years' time?
8. How are you planning to meet these needs?
9. Which key needs would be difficult to address?

1.4 Regulatory environment

Describe the regulatory environment within which your science centre operates.

1. Which legal, financial, ethical, environmental, and health and safety regulations and standards are applicable to your science centre?
2. How do you ensure compliance with these regulations?
3. Which policies, accreditation or registration requirements does your science centre have to comply with?
4. How do you ensure compliance?

1.5 Corporate governance

Describe the practices you have in place in your science centre to ensure the integrity of your people and processes.

1. How do you ensure that bad practices such as fraud and non-compliance with legal requirements do not occur in your science centre?
2. How do you ensure that data gathered and stored as required by management is accurate and stored properly for informed decision-making and quick access?

3. How do you ensure that accurate reporting commitments to stakeholders are always met?
4. Are the information communication technology platforms (e.g. Internet access, record-keeping software, backup) you use adequate to assist you in managing your data correctly?

1.6 Risk

Describe the science centre's plans and procedures for reducing risk.

1. Indicate which of the risks/threats below are the top three for your science centre:
   a. Physical disasters.
   b. Internal business processes.
   c. Legislation and political developments.
   d. Financing and sponsorship.
   e. Global economic and technology realities.
   f. Health and safety.
   g. Sustainability.
2. What plans have you implemented to deal with these risks?
3. Are these plans regularly reviewed and updated?
4. Are you aware of risks for other national and international science centres?

2. SERVICE OFFERING

The science centre offers its customers services and products that have measured impact, value and success.

List, describe and provide evidence of all exhibits, programmes and events that form part of your service offering.

The questions below are intended to guide your response to demonstrate that you meet the criterion. They should be used as appropriate to your science centre, i.e. not all questions may be relevant, and you may in some instances wish to add to the list.

2.1 Exhibits

List and describe the exhibits used by your science centre, including themed exhibits and displays.

1. How many exhibits does your science centre have?

2. Provide the following information for each of them:
   a. What is the name of the exhibit?
   b. Provide a short description of the exhibit.
   c. Is the exhibit interactive/hands-on?
   d. Is the exhibit permanently placed or mobile?
   e. Has this exhibit been used for any outreach projects?
   f. What is the purpose of the exhibit?
   g. Who is the target audience?
   h. Does this exhibit require a facilitator?
   i. What are the learning outcomes?
   j. How do you market and promote this exhibit?
   k. How do you measure the impact of this exhibit in terms of its popularity, success in conveying knowledge, etc.?
   l. What is the cost of the exhibit?
   m. Who sponsors the exhibit?
   n. Has this exhibit ever been on loan?
   o. Are there documented building plans for this exhibit?

p. Are these plans being made available to other science centres and/or training workshops?

q. Are there any intellectual property rights associated with the building plans?

r. What are your future plans to improve this exhibit?

s. How do you ensure maintenance of this exhibit?

t. How do you share your experience with this exhibit (problems and successes) with other science centres?
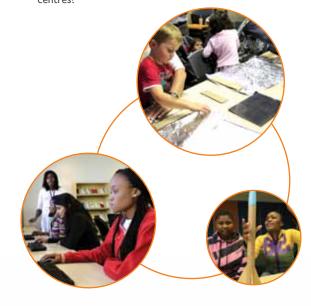
2.2 Teaching and learning programmes

List and describe the curriculum-support programmes that your science centre offers.

1. How many programmes does your science centre offer?

2. Provide the following information for each of them:

    a. What is the name of the programme?

    b. Provide a short description of the programme.

    c. What is the purpose of this programme?

    d. How many learners have participated in this programme?

    e. What is the school level of the participants?

    f. Is the programme face-to-face or distance learning?

    g. What are the learning outcomes (prescribed and other)?

    h. Who facilitates the programme (e.g. a permanent staff member, contracted educator, volunteer, educator from a school)?

    i. How involved are the educators from the schools in the programme?

    j. Describe the learning materials used.

    k. What facilities are being used?

    l. What is the cost of the programme per learner?

    m. Who sponsors this programme?

    n. What has the impact of this programme been on the following?
        i. Educators.
        ii. Learners.
        iii. Permanent staff.
        iv. Interns and volunteers.
        v. Surrounding community.
        vi. General public.
        vii. Other stakeholders.

    o. Has this programme formed part of an outreach project?

    p. How do you market and promote this programme?

    q. How do you measure the success of this programme?

    r. What are your future plans to improve this programme?

    s. How do you ensure sustainability of this programme?

    t. How do you share your experience with this exhibit (problems and successes) with other science centres?

2.3 Events

List and describe the events that your science centre has hosted in the last three years, including workshops, field trips, public talks, special days, open days, competitions and shows.

1. Provide the following information for each event in the past three years:

    a. What is the name of the event?

    b. When did the event take place?

    c. How often does this event take place?

    d. Provide a short description of the event.

    e. What is the purpose of the event?

    f. Who is the target audience?

    g. Who sponsors this event?

    h. What are the learning outcomes (prescribed and other)?

    i. Who facilitates the event (e.g. a permanent staff member, contracted educator, volunteer, educator from a school)?

    j. Specify and, where possible, provide examples of the learning materials distributed during this event.

    k. What facilities are being used?

    l. What has been the impact of this event on the following?
        i. Educators.
        ii. Learners.
        iii. Permanent staff.
        iv. Interns and volunteers.
        v. Surrounding community.
        vi. General public.
        vii. Other stakeholders.

    m. Has this event formed part of an outreach project?

    n. How do you market and promote this event?

    o. How do you measure the success of this event?

    p. What are your future plans to improve this event?

    q. How do you ensure the sustainability of this event?

    r. How do you share your experience with this exhibit (problems and successes) with other science centres?

3. PEOPLE

The science centre manages all its key relationships in such a way to ensure efficiency, sustainability, service and impact.

Describe and provide evidence of how you recruit, manage and develop new staff, as well as how you involve and manage other stakeholders.

The questions below are intended to guide your response to demonstrate that you meet the criterion. They should be used as appropriate to your science centre, i.e. not all questions may be relevant, and you may in some instances wish to add to the list.

3.1 Staff profile

Describe the composition of your staff, including all permanent and temporary staff, interns, volunteers, student assistants and contractors, as well as any others involved with your centre on a regular basis.

Provide input for each member of your staff and provide substantiating documentation where possible:
1. Age.
2. Culture and language.
3. Education level.
4. Skills.
5. Career path.
6. Developmental gaps or opportunities.
7. Key factors that motivate the person to engage in accomplishing your mission.
8. Any special health and safety requirements.

3.2 Staff recruitment

Describe your selection and employment process.

1. How do you find, recruit, hire, place and retain staff?
2. How do you ensure that they represent the ideas, culture, language and thinking of the target audience?

3.3 Succession planning

Describe how you plan for future needs in terms of staff.

1. Do you have a succession plan for each key staff member?
2. Are you investing in the development of the future leaders?
3. Are the key business processes of your science centre documented?
4. Is knowledge about how the centre operates shared?

3.4 Performance management

Describe what performance management mechanisms you have in place to ensure efficiency and staff satisfaction.

1. How do you manage the performance of staff?
2. Do you have performance review sessions at least twice a year for every staff member?
3. Do you align performance outcomes with the mission and purpose of the science centre?
4. Do you recognise good performance and reward it accordingly?
5. Do you have incentives in place for top performance and consequences for poor performance?

3.5 Organisational learning

Describe how your science centre as a whole learns.

1. How do you identify your staff's learning and development needs?
2. How do you facilitate knowledge transfer between staff?
3. How do you facilitate skills training, mentoring and coaching for staff?
4. How do you ensure that organisational learning is continuous?

3.6 Career and skills development

Describe how you develop your people.

1. Does your staff have opportunities to participate in formal career and skills development programmes, e.g. conference attendance, exchange programmes, study visits, training courses, seminars and workshops?
2. How many of your staff have participated in such developmental programmes in the past three years?
3. How do you stay informed about available programmes and opportunities?
4. Describe how you select certain staff for certain programmes.
5. How do you fund these programmes?
6. Do you budget for these programmes?
7. How do you promote them?
8. How do you keep track of which staff have participated in which programmes?
9. Do you have job-shadowing programmes in which learners and volunteers are given the opportunity to spend time with a staff member to understand the nature of their work better?
10. How many of your staff have participated in a job-shadowing programme in the past three years?
11. How many learners, interns and volunteers have participated in a job-shadowing programme at your centre in the past three years?
12. How do you keep track of which staff have participated in a job-shadowing programmes?
13. How do you promote your job-shadowing programme?
14. How often do members of your staff prepare and/or present papers or research at public gatherings, e.g. conferences and seminars?
15. Are your staff formally trained to prepare and present papers or research?
16. How do you encourage your staff to participate in career and skills development programmes?

3.7 Interns, volunteers and exchange programme participants

Describe how you manage, develop and apply the skills of interns and volunteers.

1. How many of the following have been active at your centre in the last year?
    a. DST-National Research Foundation interns.
    b. DST-National Youth Service volunteers.
    c. Independent volunteers.
    d. Volunteers from abroad.

e. Exchange programme participants.
    f. Other people.
2. How do you use them in your centre?
3. How do you train them?
4. How do you manage them?
5. Do you make enough opportunities available to them to help your centre innovate and change for the better?
6. If so, specify.
7. What impact do these interns and volunteers have on your centre?
8. How many of the interns and volunteers that have been active in your centre have obtained permanent employment at science centres?
9. How many of the interns and volunteers that have been active in your centre are still involved with science centres or related activities?

3.8 Specialists

Describe how you involve other science centres or appropriate specialists in your centre.

1. Do you employ or involve local people and/or foreigners in your science centre that could be regarded as leaders in their field of expertise (e.g. exhibit builders, event managers) ?
2. If not, why not?
3. If so, how did you manage to involve them?
4. Do you share their input and/or expertise and/or availability with other science centres?

3.9 Stakeholder management

Describe how you manage your stakeholder relationships.

1. How do you follow-up and collect feedback regarding your service offering from each of the following?
    a. Educators.
    b. Learners.
    c. Permanent staff.
    d. Interns and volunteers.
    e. Surrounding community.
    f. General public.
    g. Partners/sponsors.
    h. Governmental stakeholders.
    i. Other stakeholders.
2. How do you use the feedback gathered to improve your service offering?
3. What impact do you wish to have on each of these stakeholders?
4. How do you measure the impact you do have?
5. How do you plan to ensure that the impact you have on each of these stakeholders is sustained?

4. COMMUNICATION

The communication methods, channels and technology used by the science centre effectively promote its visibility and brand, its interaction with stakeholders and the quality of its service offering.

Comment on and provide evidence of the effectiveness of communication channels, marketing and corporate communication, science communication, information management and information communication technology.

The questions below are intended to guide your response to demonstrate that you meet the criterion. They should be used as appropriate to your science centre, i.e. not all questions may be relevant, and you may in some instances wish to add to the list.

4.1 Communication channels

Describe how you use the communication channels that are available to you, such as email, text messaging, websites, social media (e.g. Facebook, Twitter and blogs), fax, print and face-to-face forums.

1. Which channels do you regularly use to communicate and manage relationships with the following?
   a. Staff.
   b. Volunteers/interns.
   c. Audiences/visitors (schools, public).
   d. Partners/sponsors.
   e. Governmental stakeholders.
   f. Other science centres.
   g. Other stakeholders.
2. Do these channels promote understandable, two-way communication and transparency?
3. Which channels are available for use by staff, volunteers and interns?
4. How often do you evaluate the effectiveness of these channels?

4.2 Marketing and corporate communication

Describe how you promote your centre and service offering using marketing and branding initiatives.

1. What makes your science centre different from others?
2. To whom should you communicate your uniqueness?
3. To whom do you communicate your uniqueness?
4. Do you incorporate your uniqueness in your corporate identity, which includes all aspects of external communication such as your logo, mission statements and annual reports?
5. What other methods and/or approaches do you use to communicate your uniqueness?
6. Specify which communication channels you use to market promote and brand yourself.
7. Why are you using these channels specifically?
8. Are you aware of successful marketing strategies implemented by other science centres?
9. Do you use any of the following as marketing opportunities?
   a. Community involvement or outreach projects.
   b. Conferences.
   c. Publications.
   d. Website and other digital media.
   e. Public talks.

4.3   Science communication

Describe how your science centre communicates science to its target audience and how you ensure the quality of this communication.

1. Which languages do you use to communicate with your audiences/visitors?
2. Are the facilitators at your centre equipped to communicate easily with your audiences/visitors?
3. If not, why not?
4. How do you assist facilitators to improve their science communication skills?
5. Where do you source the majority of facilitators you use?
6. What other methods/media types do you use to communicate scientific knowledge and concepts to your audiences/visitors (e.g. posters, signage, interactive software)?
7. Does your science centre host events or publish news related to the public understanding/awareness of science?
8. If so, please specify.
9. Does your science centre work with governmental organisations such as the South African Agency for Science and Technology Advancement to implement science communication initiatives?
10. What measures does your science centre have in place to evaluate the efficiency and scientific accuracy of all communication to audiences/visitors?

4.4   Information management

Describe how you manage the information that flows into and out of your science centre so that its quality is ensured and so that knowledge sharing takes place.

1. How often do you produce publications?
2. How and where do you distribute these?
3. How do you produce information in house?
4. How do you collect information?
5. How and where do you store collected information?
6. How do you share information with your customers?
7. How do you share information with your stakeholders?
8. How do you share information and knowledge with other science centres?
9. Do you keep up to date with industry trends and the most recent news and challenges that national and international science centres face?
10. Are you participating in creating a central knowledge base accessible by all science centres?
11. Is there enough opportunity to share your experiences and to learn from others?

4.5   Information Communication Technology

Describe how you use information communication technology to assist in effective internal and external communication and information management in your centre.

1. How many computers are being used on the premises and for what purpose?
2. What is your Internet connectivity situation?
3. If you have little or no Internet connectivity, indicate what you would use it for if it were provided?
4. How often are the data on the administrative computers backed up?

5. QUALITY MANAGEMENT AND BENCHMARKING

The monitoring and evaluation system implemented ensures the quality of all products, the adherence of the centre to the management processes it has adopted, and the compliance of its facilities with health and safety and disability regulations.

Describe how your science centre manages facilities and adherence to appropriate standards and benchmarks.

The questions below are intended to guide your response to demonstrate that you meet the criterion. They should be used as appropriate to your science centre, i.e. not all questions may be relevant, and you may in some instances wish to add to the list.

5.1 Standards and evaluation

Describe what standards and evaluation mechanisms you have in place to ensure quality in your science centre.

1. What are the standards you set for your science centre in terms of improving and maintaining the quality of the following?
    a. Your facility and premises.
    b. Your staff (e.g. facilitators, volunteers, contractors).
    c. Internal business processes (e.g. performance management).
    d. Service offerings (e.g. exhibits, programmes and events).
2. How do you evaluate your science centre against these standards?
3. What is the outcome of the last evaluation you undertook?
4. Do you benchmark the outcome of these evaluations against other science centres and general best practice in the industry?

5.2 Procurement/manufacturing

Describe how you manage and maintain a cost-effective procurement and manufacturing system.

1. How do you manage the procurement and/or manufacturing of the following?
    a. Facilities and premises.
    b. Services.

c. Exhibits.
d. Equipment.
e. Materials (consumables and other).
2. How do you ensure cost-effectiveness?
3. Do you have updated, accessible lists of all service providers?

5.3 Asset management

Describe how you effectively manage all your assets.

1. Do you have updated, accessible lists of all assets?
2. How do you manage and maintain the following assets?
    a. Facility and premises.
    b. Exhibits.
    c. Equipment.
3. How do you ensure cost-effective maintenance?
4. Which items on your asset list are adequately insured?
5. What is your insurance situation for items that you borrow and lend?
6. If your insurance cover is not sufficient, why not?

5.4 Health and safety

Describe the health and safety situation in your science centre.

1. How do you ensure a safe and secure environment?
2. Which staff member is responsible for ensuring that your science centre complies with all the health and safety regulations applicable?
3. Are all staff trained in applicable health and safety procedures?
4. How accessible is your science centre to disabled visitors?

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The following documents guided and informed the compilation of this document:

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