Draft

Road Map

Towards a Southern Africa Regional Physics Network

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1 Introduction.

This document outlines an 18-month roadmap on the quest to launch a SADC regional physics society currently known as SAPhysNet.

It is anticipated that the Southern Africa Physics Network will facilitate human capital development and build the research capacity of Physics in Southern Africa by creating a network and platform on which academics, students and researchers develop professionally, network, share ideas, share research facilities, study opportunities, research opportunities, funding opportunities, support co-supervision agreements and student mobility grants within Southern Africa. Ultimately it must lead to physics research applications and exploitation for sustainable socio-economic development through identifying challenges and opportunities that can be solved through physics, promoting innovation and commercialisation of physics research.

1.1 Assumptions

The 18 Month period assumes the following are in place

- A database of contacts and buy-in by key stakeholders, such as physics departments, research facilities, government agencies, and other physics stakeholders within SADC.
- A Task Team comprising representatives from SADC countries is constituted and
- Stakeholders have approved the Task Team's Terms of Reference

1.2 Implementation Strategy

The task team will implement the launch of the SAPhysNet through the work of three complimentary working groups:

- **Working Group 1:** Governance Framework: will focus on developing the constitution of SAPhysNet (IUPAP Igle, SA, Phinifolo, Chair: Mmanstae Diale

- **Working Group 2:** White Paper on Shaping Physics in SADC: will focus on understanding the status of physics in SADC, identifying strengths and weaknesses, challenges, and opportunities, and making recommendations on how SAPhysNet can help address these challenges and opportunities and regional SADC development to address socioeconomic matters in the region. (Yashwant, Kavish, Paulus, Chair: Sifiso

- **Working Group 3:** Fundraising and Resource Mobilisation: will focus on fundraising for activities described in this roadmap from month 1 to month 18.
  (Mongi, Chair: Edgar,

  Marketing and Publicity: SAIP, AfAS and other regional bodies

2 Working Group 1: Governance

2.1 Phase 1: Planning and Initial Mobilisation (Months 1-3)

1. Expanding Contact and Stakeholders database
   - Continue to lobby and expand the pool of stakeholders
2. Preliminary Research and Benchmarking
   - Study existing successful regional physics societies, e.g. the West African Physical Society, for structure, policies, and activities.
3. Preliminary Constitution Drafting

a) Draft an outline of the constitution, focusing on essential elements such as membership types, governing bodies, decision-making procedures, and objectives.
b) Define key goals, vision, and mission for the SAPhysNet

4. Fundraising & Resource Mobilisation
    - Identify and raise funds for all activities from Phase 1 to Phase 4

2.2 Phase 2: Constitution Development and Consultation (Months 4-9)

5. Drafting the Constitution
    - Develop a detailed draft of the constitution, covering:
        1. Membership structure and eligibility.
        2. Governance framework (roles, responsibilities, elections, and committees).
        3. Funding and financial management guidelines.
        4. Code of ethics and member conduct.
6. Consultative Workshops and Feedback
    - Organize regional workshops (virtual and/or in-person) with physicists, students, and policymakers across SADC countries to gather input and feedback.
    - Refine the constitution based on feedback to ensure it meets regional needs and goals.

2.3 Phase 3: Pre-Launch Preparation (Months 10-15)

7. Membership Drive and Awareness Campaign
    - Design a membership recruitment strategy targeting students, researchers, and professionals across SADC.
    - Launch a marketing and outreach campaign through university networks, social media, and partner organisations.
    - Build a website to serve as an information hub, including details on membership, society events, and resources.
    - Establish official communication channels (e.g. mailing lists, social media).

2.4 Phase 4: Society Launch and Initial Activities (Months 16-18)

8. Organize the Inaugural Conference and Launch Event

    - Host an official launch event, inviting members, stakeholders, and media.
    - Include presentations on the society's objectives, key initiatives, and the importance of regional collaboration in physics.
    - Link this to a physics conference or event

9. Ratify the Constitution and Elect Inaugural Council/ Leadership
    - Ratify the constitution in a formal assembly with members.
    - Hold the first official election for the society council (e.g., President, Vice-President, Treasurer, Secretary and Ordinary Council Members).
    - Launch the SAPhysNet

3 Working Group 2: White Paper on Shaping Physics in SADC

3.1 Phase 1: Planning and Preparation (Months 1-3)

1. Define Scope, Objectives, and Key Metrics
    - Set clear objectives: assess the current state of physics education, research, facilities, collaborations, challenges, opportunities, international cooperations, regional cooperations, and workforce within SADC.
    - Identify key metrics, such as the number of physics graduates, research outputs, funding levels, and collaborations.
    - Draft a preliminary framework for the final recommendations report, including focus areas (e.g., education, research, policy).
2. Secure Funding and Partnerships
    - Seek financial and in-kind support from regional bodies, international physics societies (e.g., IUPAP), and organisations invested in science and education in SADC.
    - Identify potential academic or institutional partners for conducting research or providing data.

3.2 Phase 2: Data Collection Design and Preliminary Research (Months 4-6)

3. Develop Survey Tools and Methodologies
    - Design survey instruments (e.g., a questionnaire and interview guide) targeting physics educational institutions, government bodies, and research centres.
    - Tailor survey sections for various stakeholders, such as educators, researchers, policymakers, and students, to ensure comprehensive input.
4. Preliminary Research and Desk Review
    - Conduct a literature review on physics development in SADC and similar regional studies for context.
    - Gather baseline data from existing reports on the status of physics education, research, and workforce statistics in the SADC region.
5. Pilot Testing of Survey Instruments
    - Run pilot surveys in select countries to validate questions, identify challenges, and refine tools.
    - Analyse pilot results to adjust survey content or approach as needed.

3.3 Phase 3: Data Collection (Months 7-12)

7. Deploy Surveys and Conduct Interviews
    - Launch surveys across SADC countries, targeting universities, technical colleges, research centres, and industry representatives.
    - Conduct in-depth interviews with selected physics educators, policymakers, and industry stakeholders to gather qualitative insights.
8. Organize Regional Focus Groups
    - Host focus group discussions with students, educators, and industry leaders to discuss opportunities, gaps, and challenges in physics education and research.
    - Include representation from rural and underserved regions to capture diverse perspectives.
9. Collect and Consolidate Data
    - Collect responses and consolidate data, ensuring adherence to data privacy and ethical guidelines.
    - Begin preliminary data analysis to identify emerging themes and insights.

3.4 Phase 4: Data Analysis and Drafting Recommendations (Months 13-15)

10. Analyse Data and Identify Key Findings
    - Conduct quantitative analysis of survey results and qualitative analysis of interview and focus group feedback.
    - Identify critical gaps, strengths, and opportunities across areas such as funding, curriculum, infrastructure, research capacity, and gender equity.
11. Develop Draft Recommendations
    - Based on findings, draft recommendations to address identified gaps, enhance strengths, and leverage opportunities.
    - Focus recommendations on actionable steps in education, research, policy, and industry collaboration.
12. Hold Stakeholder Workshops for Feedback
    - Organize workshops with stakeholders across SADC countries to review findings and refine recommendations.
    - Incorporate stakeholder feedback to ensure the recommendations align with regional needs and priorities.

3.5 Phase 5: Final Report Launch and Dissemination (Months 16-18)

13. Compile and Publish the Final Report
    - Finalize the report, organising it into sections covering key findings, recommendations, and actionable steps.
    - Include an executive summary, supporting data, case studies, and potential implementation timelines.
14. Develop a Dissemination Strategy
    - Create a dissemination plan to share the report with key stakeholders, including educational institutions, government bodies, and industry partners.
15. Launch and Present Findings
    - Present and launch the report at SAPhysNet Launch Meeting