

**‘The contribution of Entrepreneurship to enhancing
Diversity and Inclusion in the Scientific
Enterprise’**

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The key attributes of Entrepreneurs

- ✦ **Autonomy:** Independence/control of their skills, expertise, know-how and its applications
- ✦ **Negotiation:** Highly developed and intuitive negotiation skills, able to operate in any setting/institution/environment
- ✦ **Innovation:** Hard-wired and driven to innovation and value added
- ✦ **Leadership:** A keen sense of their leadership role and the responsibilities involved in their chosen field
- ✦ **It takes all 4 attributes to define an Entrepreneur!**
- ✦ **Entrepreneurs operate in Government, Industry, Academia, Research Institutions, Social Enterprises/Charities and in running their own private businesses/commercial activities!**

Entrepreneurship: Africa and Social Inclusion

- ✦ It is internationally recognised that the scientific enterprise has still in the 21st century failed to successfully address the many unsolved cultural, race/ethnicity, gender and social-class inequalities in terms of access, attainment, progression and representation in SET education, skills and professions.
- ✦ On the issue of race/ethnicity, there is a growing recognition that in many African countries the patterns of the acquisition of SET education, skills and professions do tend to reinforce ethnic/tribal/racial inequalities, many of these inherited from the colonial era.
- ✦ The Southern African region is usually held up as the exemplar in general, with South Africa in particular, very much in the frame due to the pernicious legacy of the apartheid era. However, many African countries are also having to painfully address the ethnic and tribal inequalities in their SET skills and human resource pool.
- ✦ The inception of the African Union (AU) injected a new sense of collective purpose into many African governments, and one of the areas that has benefited is that of SET education, skills and professions on the continent. Alongside this, there has been the growing recognition of the imperative for the inculcation of entrepreneurial skills into Africa's cadre of SET professionals as a strategic tool with which to enhance their skills-set and contribution to Africa's sustainable economic development.

SET: The Development Link

- ✦ Since 2000, there has been an increasing recognition of the place of science in international development. In 2005, the UN World Summit addressing the follow-up to the Millennium Development Goals stated, 'We recognise that science and technology, including information and communication technology are vital for the achievement of the Development Goals' (United Nations 2005, para 60).
- ✦ The on-going devastating impact of Climate Change progression in many parts of Africa and the developing world, has led many international development agencies to re-assess their skills/human resource profiles, from a high reliance/dependency on medical and medical-related skills to Engineering and technology-based skills mix.
- ✦ This new skills paradigm has been a challenging one for SET professionals to respond to, as they lack the social entrepreneurship skills needed to effectively operate in these complex environments, where human, environmental, cultural, social and economic dynamics can be quite a profound mix, especially when compounded by the trauma of infrastructure damage on a large scale.

Good Practice: SET & Social Entrepreneurship

- ✦ **Engineering 4 Society: The conceptualisation, planning and implementation of the three year degree programme Eng4Soc as part of the innovative good practice delivered by the Hefce-funded National Engineering Programme (NEP). The NEP is a five year funded initiative to address race/gender/social class inequalities in Engineering education, skills and professions, with the ACNST as one of its partner organisations.**
- ✦ **Eng4Soc: is an undergraduate programme to produce multi-skilled engineers suited to the development challenges of the 21st century, able to operate as highly effective social entrepreneurs in a variety of dynamic, social, environmental and cultural settings, locations and communities. Eng4Soc is the first course of its kind in the UK, with plans to develop a masters and doctorate degree programme to enhance the progression of it's graduates, establish a research and scholastic framework for this innovative field, and generate a human resource pool of senior academics able to transfer the good practice to other universities and institutions in the UK and internationally.**

Summary

Entrepreneurial skills are a powerful and effective tool with which to equip scientists and engineers to address the complex social, cultural, environmental and economic challenges of the unfolding 21st century, particularly with regard to developing countries.

However, progress in this regard has been marginal and patchy, and leadership and commitment from the SET sector, particularly so. The leadership of the NEP partners in this regard has been an exemplar, and the Eng4Soc degree programme highlighted in this presentation, has shown what can be achieved in partnership with multi-level stakeholders, and their critical insights and perspectives.

The way forward can only be achieved through strategic and sustainable multi-level activity. In this regard, I propose that a key outcome of this Workshop should be the setting up of a Working Group (WG) to seek to support Universities in Africa to develop and implement Engineering for Development degree/post-graduate degree programmes. The WG should also support these institutions in securing funding for these innovative programmes from international bodies such as the EU, UNESCO, UK-DfiD, amongst others.



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