

Space & Society – a political scientist’s view

presentation, with revisions, to the symposium:
NRF & the future South African space programme

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INTRODUCTION

I served on ANC S&T Policy Group 1991-1994 until it was replaced by the democratically-elected Parliamentary portfolio committee on S&T.

I was saddened by the attitude of too many scientists. They only lobbied to get their own field or discipline included in the ANC’s S&T policy, eg, new materials, biotechnology. Then they dropped out. In short, once they go their own budget increase, they showed no concern for S&T as a whole. Apart from a few honourable exceptions such as Prof. Iqbal Parker of UCT’s cancer research, & some who serve on the Academy, or Royal Society, they left the S&T system to political and bureaucratic decision-makers.

CURRENT SITUATION

First, scientists in their own field are not always the ones who realize what could be spin-offs, or spin-ins. It is untrue to perceive that only the look-down remote sensing earth observations have practical applications, while the look-up astronomers are only of curiosity value. The launch of the digital age means ever-growing commonalities in image-processing and other software, in sensor technology, and IT in general

We need to develop some institutional capacity, whatever its final bureaucratic configuration, to avoid the “silo effect” & think out of the box. Spin-offs are most likely to occur to a multi-disciplinary think-tank including all engineers, political scientists, other social scientists, and business innovators.

Points already made before my paper are that we do not have bandwidth, but bandnarrowth. All the astronomy and space science & technology community need to unite to strongly lobby for two orders of magnitude reduction in bandwidth cost, and three orders of magnitude increase in bandwidth.

Bursary amounts assume that they are topping up the income of middle-class families. At most they pay tuition and residence fees. The reality for many black students is that their parents are retrenched, pensioners, or labourers. Some black students are helping to feed a mother, father, or a sister, and cannot afford to buy text-books.

Second, under apartheid, previous generations of astronomers thought themselves generous to allow the public one night per year to look through a telescope at Sutherland – booked out six months in advance - versus the current three tours per day, and public viewing telescopes.

The SALT Collateral benefits programme that Bob Stobie compiled in the 1990s, with two paragraphs of input from me, was the first big step forward. Public outreach, schools outreach, needs to be on a vastly bigger scale than currently. Note it was NASA that flew a Gugulethu schoolgirl to JPL in Pasadena and gave her a cram course on robotics so that she could spend a day steering one of the Mars rovers.

SAASTA needs a vastly bigger budget to do this in future. It should be resourced to distribute robotics kits to township schools as NASA does.

When I was 2005-2006 chair of the Cape Centre of the Astronomical Society, what gave me the biggest surprise and caught me off-guard was the fear and aversion to politics and government that some amateur and professional astronomers showed. It would be more productive to lobby, to charm and network for more resources for astrophysics.

Third, the inter-disciplinary sources of inspiration are constantly changing. The first generation of space pioneers – Goddard and von Braun – were inspired by science fiction or a gift of a telescope. The second generation – the space shuttle crews – were inspired by the launch of Sputnik, Gagarin, and landing twelve men on the Moon. The third generation – Garth Milne of Stellenbosch University – were inspired by being a radio ham. The fourth generation – Mark Shuttleworth and Anouseh Ansari – were inspired by the internet. We cannot predict which field will inspire the fifth generation.

RECOMMENDATIONS

1. It is unfortunate that Astronomy did not include itself in the founding of our national space agency. It is even more disconcerting that SAAO, HartRao, and HMO separately seek competitive funding from the NRF. Surely Astrophysics itself needs to institutionally unite? And to form an Astrophysics caucus or coalition pulling together regardless of which part of the electromagnetic spectrum we observe?
2. We now need to conceptualize a permanent collateral benefits programme for the *whole of our Astrophysics, other space science and space technology programme*. This also needs a public relations dimension that must go far beyond promoting only space science & technology, but embraces the broad S&T front, plus awareness of space & society in even culture.
3. We need some sort of permanent think-tank, that is as broadly constituted as possible, to help scientists identify spin-offs and spin-ins.
4. What institutional shape would be optimal for achieving this?