

SUSTAINABILITY Of NATIONAL R&D INSTITUTIONS



IAEA

International Atomic Energy Agency

This presentation discusses -

- Why is the IAEA concerned about Sustainability of its Counterpart Institutions
- A possible generic approach to achieving Sustainability in national R&D institutes
- The barriers to achieving Sustainability

Note: This is a Global Overview

THE CONCERNS

Government funding policies have changed

- Funding for S&T is seen as an investment
- Increasing adoption of a “more market” or “smaller government” approach
- Increasing demand for S&T institutes to earn revenue, or decrease dependence on direct central government funding

- S&T funding competes with other expenditure areas such as health, education and for increasingly scarce financial resources
- Institutions should conduct R&D that delivers benefits to society (measurable economic, social or environmental benefit)

The result of policy changes

- Generally, funding is decreasing.
- Staff are aging; equipment is old and not replaced; there are insufficient funds for operations; new applications cannot be developed. As a result -
- The long term viability of many national institutions is under threat
- There is an urgent need to address their *Sustainability*

What is Sustainability?

Sustainable Institutes (RAS/0/032)

Institutes that have the resources, infrastructure* and technical capabilities to contribute fully and over the long term to the economic, environmental and social needs of a country

* Including business management competence

Sustainability

The ability of National Nuclear Institutions and their key partner institutes to remain functional and relevant within their given mandate, within an agreed dependence on core government funding and the capability to adapt to changes in the external (funding) environment

Emerging Funding Systems

- A mixed funding system is emerging (direct, core government and ‘other revenues’)
 - These other revenues can come from –
 - Other government departments
 - Local government
 - Private sector
 - Development agencies, EU
- Also -
- Extra “core” funding because the work done for ‘free’ for the public good is fully recognised.

The Challenge

Government funding for nuclear science is unlikely to increase in real terms.

It is more likely to decrease

Nuclear institutions must learn to survive with less dependence on direct funding from government

They must learn to develop new revenue streams through “selling” the knowledge, products and services that come from successful R&D

A Possible Approach

To achieve sustainable institutions

- Ensure excellent basic research is encouraged
- Develop an environment where knowledge fosters *innovation* that assists the development of the country
- Ensure that there is a high level of *targeted* research which leads to applications that are *used* for the economic, environmental or social good of the country

To achieve sustainable institutions

Through their knowledge, services and products, institutions must ensure they obtain the revenue needed for viability, for growth and to meet the future research needs of the country

The revenue mix

- Government funding + other revenue (contracted, earned or self-generated revenue)
- To succeed in a competitive funding environment, institutes need to “market” their abilities better. This applies not only to the outside customers, but to the government as a customer

Part of the Solution

To gain financial strength and stability from having many sources of revenue and many 'clients' that want our services

But to achieve this we need –

- to make clients aware of our services
- to be relevant and 'add value'
- to deliver those services well
- to obtain financial benefit

Sustainability Paradigm

Sustainability is the result of –

Excellent R&D + Good Business Skills

=

Competitive Products & Services + Good
Delivery

=

Many satisfied clients

What are the barriers?

Key Issues

There must be an Enabling or Supportive Environment through appropriate -

- Government policies
- Institutional policies and organisation

Business and management skills

Government policies

- Must not 'penalise' institutes for earning other revenues.
- An increase in earned revenue must not cause a decrease in core government support
- Better integration of funding policy across Ministries
- Financial rules that inhibit working with the private sector must be relaxed

Institutional Organisation

- Must encourage multi-disciplinary teamwork to solve customers problems
- Must discourage “unhealthy” competition for resources or duplications between sections/groups/departments
- Must make it easy for outside organisations to access ALL the information they need
- Have a co-ordinated “One-stop shop” approach for the institute

Business management skills

Institutes need skills to successfully manage

- the process of taking the services and products from successful R&D into the marketplace
- on-going client relationships

Basic Business Skills

- Need for a Business-like Approach: What is business?
- New product/service development
- Costing and Pricing
- Marketing and Promotion
- Communication
- BUSINESS PLANNING ****

- Project Management
- Organisational Structures: Working in Teams
- Intellectual Property
- Value and Quality
- Building Client Relationships ***

Why Focus on Client Relationships

- Good client relationships are the most likely route to long term sustainability

Technology Forecasting

- Strong on-going relationships with clients lead to long term understanding of –
 - The capabilities of the institute by the client
 - The problems and issues of the client by the institute

Technology Forecasting

- When the relationship is strong the institute will hear about the plans of the user for the next five years and what they expect to need in the way of new technology
- The institute can plan for new research to be in place that will be meeting the future needs of clients

Business Development Units

- Many institutes are establishing or strengthening units that are focussed on developing their work with and revenue from “customers or clients” - BDUs

BDUs

- BDUs vary in structure between institutes and countries, but have in common that they have a small group of people with the skills to manage the process of technology transfer and the marketing of services and products.

BDUs -

- create a 'critical mass' of staff
- ensure a sustainable institutional capacity in business skills

The role of BDUs

- act as a 'bridge' between the R&D arm of an institute and potential users
- provide overall management and co-ordination of client relationships, particularly the private sector, and the process of technology transfer and the provision of products and services for the institute
- provide assistance in the assessment of the technology transfer potential of research portfolios.

Business-like, but not Businesses

- National R&D Institutions remain primarily R&D, non-profit organisations. Any 'profit' is put back into the institute capabilities.
- This is why we say they should be Business-Like, not a commercial business

The Hidden Issues: Staff Attitudes

- The attitude of staff in R&D institutions is always cautious, sometimes very negative, to the changes seen as necessary in science funding
- They are particularly concerned about the impact of increasing dependence on self-generated funding from outside the Ministry of Science

An Important First Step

- Attaining sustainability is also an issue about changing attitudes among the staff of R&D institutes. This can be a long-term process

What are the concerns?

- Increased outside funds means further reductions in core government funding (and IAEA TC funding?)
- Commercial funding will cause a reduction in basic research work
- Commercialisation = Privatisation
- Research will become focussed on the short-term goals

- Working on non-research projects will reduce publication rates, and reduce salary and promotion prospects
- If patenting becomes a major consideration, publication of results will be reduced or delayed
- Research for the private sector has less status than 'academic' research

- Scientists do not have the skills to work effectively with the private sector (nor should *real* scientists be expected to)

The Hidden Issues: Government & Institute Policies

- Government and institution managers cannot expect change from staff or a change towards greater self-generation of revenue without creating a supportive environment
- This may mean policy change

Financial Issues

- Clear agreement between government and institution on the level of “core” funding and what it expects to receive in return –
 - Institutions need to identify their core facilities, their “public good” roles and basic R&D that will support development and the associated costs
 - Key Performance Indicators for core funds

- Retention of self-generated revenue within the institution
- Roll-over of funding
- Greater responsibility and accountability within the institutions
- Less red-tape, more responsiveness
- Revenue targets???

- Does self-generation of revenue require a Corporate model?
- Policies needed on -
 - Competition with the private sector
 - Spin-off companies
 - Intellectual Property Rights

R&D Issues

- Retention of basic research capabilities
- Maintaining adequate long-term focus

Human Resource Issues

- More flexibility in staff recruitment/retention policies
- Succession planning to deal with aging staff demographics
- Promotion should reward enterprise in generating business and revenue as well as publication records
- Job descriptions for *appropriate* staff to include marketing/revenue targets

Staff issues

- Their issues (earlier) need to be acknowledged and managed
- They need *incentives* to change

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Business and management skills

THANK YOU
&
GOOD LUCK