



United Nations
Economic Commission for Africa

Towards Effective STI Policy Formulation and Implementation

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The 2030 Agenda: Leave No One

Levers (Enablers)

- ❖ Governance
- ❖ Economy and finance
- ❖ Individual and collective action
- ❖ **Science and technology**



Entry point (focus and action)

- Human well-being and capabilities
- Sustainable and just economies
- Food systems and nutrition patterns
- Energy decarbonization and universal access
- Urban and peri-urban development
- Global environmental commons
- Shared responsibility for transformation

The 2030 Agenda: STI and Africa

- ✓ 169 targets; 14 explicitly refer to technology, 34 relate to STI (total of 48 targets relate to STI).
- ✓ SDGs recognise science, technology and/or innovation is/are not necessarily inclusive

And.....

- ✓ Present different level of difficulty (employment, poverty, health, climate change etc)
- ✓ Represent varying technology and business opportunities

SDGs: Global STI supply and

The Goals

Level of STI
(high impact tech)

Business Opportunities
Total of \$12 trillion

2-Food; 3-Health; 7-Energy

High
(60 tech)

\$6t

4-Education; 8-Jobs; Growth;
9-Industry, Innovation; 11-
Cities

Very high
(15 tech)

\$5t

6-Water; 13-Climate;
14-Oceans; 15-Forests

Medium
(7 tech)

\$0.5t

1-Poverty; 5-Gender;
10-Inequalities; 16-Forests

Low
(4 tech)

\$0t

- Source: IATT-STI 2017

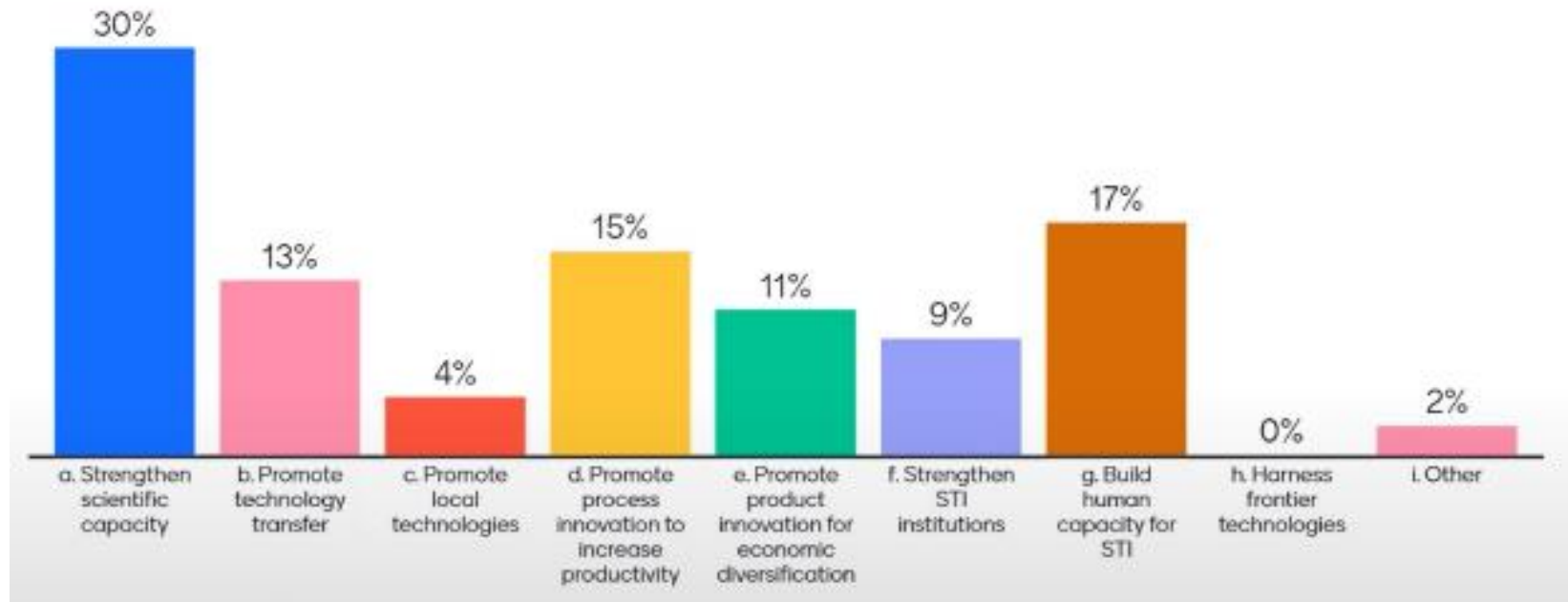


Message 1

SDGs present vast opportunities for the World, and for Africa, provided that the right policies and institutions to build and leverage existing STI capabilities are in place.

Science, Technology and Innovation Policy?

“...set of actions that governments can take to deal with a range of problems in the intersecting and complementary domains of science, technology and innovation to achieve a clearly defined (national) objective when private incentives provided by free markets systematically perform poorly” (Weimer and Vining, 1989)



Examine assumptions of STI policy FAILURES in Africa

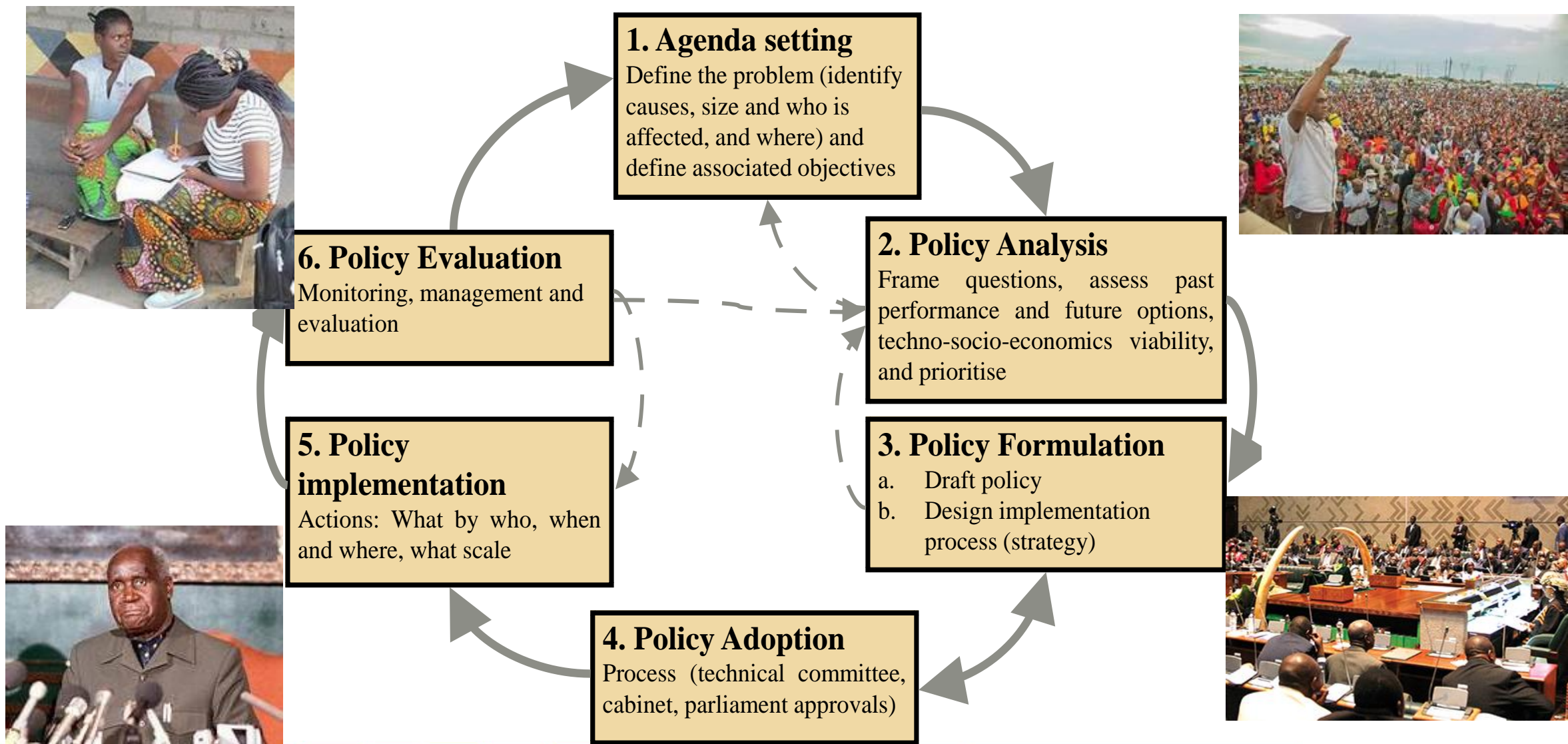
- Fantastic policies but poorly implemented
 - Are the policies good?
 - Lack of - political will, funding etc yet institutions built?
- Poor stakeholder engagement?
 - Do they have any stake and which stake, how large or how small?
 - Do they know they have stake and/or their role?
 - Key ministries uninterested in STI – what was their roles?
- Fragmentation, duplication of efforts or competition (but is needed to drive innovation)
- Lack of policy encourages inactions
 - Codified or uncoded, policy action needed?
 - A 'me too' or a true policy investment?

Decades of STI policy making but poor results

- 3% of global researchers
- 1% of global expenditure on R&D – largely unchanged
- 0.3% of global \$2.3 trillion high-tech exports value
 - Agenda 2063 target 50% of manufactures- estimate= 10-15%
- 0.2% of global \$423 billion payment (BoP) for IP
 - Low tech acquisition
- 0.07% of global \$380 billion receipts (BoP) for IP
 - Low tech export

It has implications on leveraging STI to meet SDGs (the case of COVID-19).

STI Policy Making and Implementation



Revisit assumptions of implementation failure/gap

- **Politicians make policies while bureaucrats implement**
 - Is there a clear separation of roles;
 - Politicians & policy implementation
- **Policies are good in design but poorly implemented**
 - Is there a clear plan/strategy in place? Is it realistic?
- **Poor stakeholder engagement?**
 - Do they have any stake, which stake, how large or how small?
 - Are roles clearly defined, secured committed or arbitrarily assigned?
- **Fragmentation, duplication of efforts or competition?**
- **Policy and inaction**
 - Codified or uncoded, is policy action needed?
 - Lack of policy results in action?

Appreciating implementation failure/gap

...“failure is rarely unequivocal and absolute...even policies that have become known as classic policy failures also produced small and modest successes”..

- **Manage political commitment**

- Vested interests of stakeholders and their interests and relationships
- Enhance their absorptive capacity
- High political commitment is often a disadvantage to success

- **Overly optimistic policy agendas**

- Do they have any stake, which stake, how large or how small?
- Are roles clearly defined, secured committed or arbitrarily assigned?

- **Inadequate coordination arrangements**

- **Poor collaborative policy making and problem-solving platforms**

- **Rapidly revolving political cycle**



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The case of Zambia NSTP 1996



Goals and Objective

Goals

1. Enhancing linkages between technology research institutes, the private and public sector to encourage demand-driven research and development;
2. Developing and sustaining a national scientific and technological capacity and providing highly skilled human resource for increased productivity in the economy;
3. Fostering national and international linkages for enhanced technology transfer; and
4. Facilitating the acquisition, adaptation and utilization of foreign technology.

Broad policy objective ..is to embed science and technology [in] key sectors for promoting competitiveness in the production of a wider range of quality goods and services.

- Recognizing gender concern; changing institutional structure; ensuring that research is guided by national developmental goals; establishing a mechanism for increased innovation, transfer, diffusion and commercialization of technology

The main asks

1. Separate R&D from policy advice as well as from technology commercialization
2. Establish the Depart. Of S&T in the Ministry
3. Establish post of S&T Advisor to the President
4. Create S&T Development Fund and Venture Fund
5. Introduce tax breaks for R&D, commercialization, licensing and other tech inputs
6. Allocate 3% of GDP to S&T

Accomplished

✓ Separation of R&D from policy advice and commercialization

NISIR for R&D, NCST for Advice and NTBC for ToT created

✓ Establish the Depart of S&T

Established

X Establish post of S&T Advisor to the President

✓ Establish Committees of STI in Parliament and Cabinet

= Create S&T Development Fund and Venture Fund

Some funds but not VC or standalone funds

+ Introduce tax breaks for R&D, commercialization, licensing and other tech inputs

Most already existed for public and private R&D, tech transfer and capital goods

X Allocate 3% of GDP to S&T

Not achieved

Implementation failure?

Internal conflicts or interests? (Case of Science Advisor)

- The Head of NCSR was automatically Science Advisor to, appointed by, and report to the President and; Chaired or was board member of other public R&D entities. The 1996 policy changed in favour of independent office. Lost both

Unclear mandates (case of VC)

- None of the entities could run a venture capital fund - NTBC can neither take equity or give loans to firms. Non-starter

Unreasonable ask (case of 3% of GDP)

- Very few countries meet R&D expenditure of 3% of GDP – none at Zambia's level of economic development ever.
- 3% of GDP is about 8-10% of national budget (budget for Health or Education)

Missed the changing economic, political and technological environment

- Zambia was privatizing, STI Policy was looking for more government involvement
- ICT was growing but got less attention
- Extremely inward looking

Beyond expectations

- Policy formulation attract more stakeholder than implementation
 - *Several meeting, travels and teams involved in formulation but few in implementation*
- Assumed to be logical progression
 - *Goal determine institutions, institutions determine outcomes, but rather complex, non-linear and in everchanging (cases of Internet, mobile, biotech)*
- The links between goals and the planned actions
 - *“... embed science and technology [in] key sectors for promoting competitiveness in the production of a wider range of quality goods and services” and establishment of institutions...*
- Implementation always bring new issues on the agenda
 - ‘Things never go as planned’
- Blurring distinctions between policy formulation and implementation (e.g. health decisions are self-implementing)

Towards Effective STI Policy Making

Science, technology and innovation policy making needs to be institutionalized rather than adhoc

Policy platforms for continuous policy research and dialogues, M&E.

***The lack of implementation plans** poses another key challenge.*

Clearly defined monitoring and evaluation frameworks on when, where, by who and for what;

Resource mobilization and allocation by disaggregated by source and time, and the returns from and impacts of such resources.



Thank you.

Ideas
to
Action