



## UNESCO GO→SPIN Methodological and Data Collection Training Workshop – Republic of Uganda

12–16 April 2021

# LECTURE 2: GO→SPIN's methodological approach to analyse SETI policies and policy instruments

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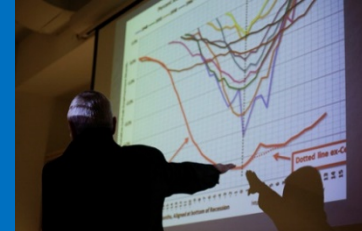


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# Evidence-based policies



- Tests theory - why will the policy be effective and likely impacts if successful?
- Separates the uncertainties and controls for other influences outside of the policy that may have an effect on the outcome
- Incorporate some measurement of the impact
- Examines both direct and indirect effects that occur because of the policy (unintended consequences)
- Empirical validation





# The need for data



*Accountability for spending of public funds requires:*

- Informed strategy and forecasting
- Indicator-based joined-up policy
- Coordination of plans and budgets
- Monitoring
- Measurement and evaluation of programmes and projects
- Benchmarking
- Learning



Variable analysed

Time

Explicit  
policies and  
policy  
instruments

Implicit  
Policies

Political stability  
and National  
Contextual Factors

INDICATORS: R&D+i.  
governance. social.  
economic. industrial.  
educational. ICT.  
environmental. etc.

- \* Texts of SETI policies
- \* SETI legal instruments
- \* SETI institutional ecosystems
- \* SETI operational policy instruments



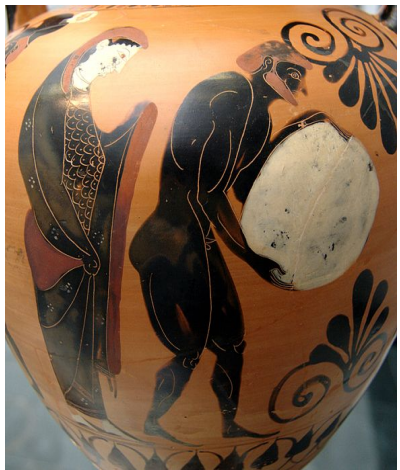


Why we need political stability, government effectiveness and long-term public policies for sustainable development?

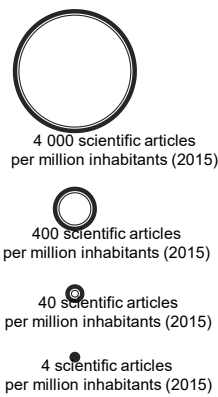




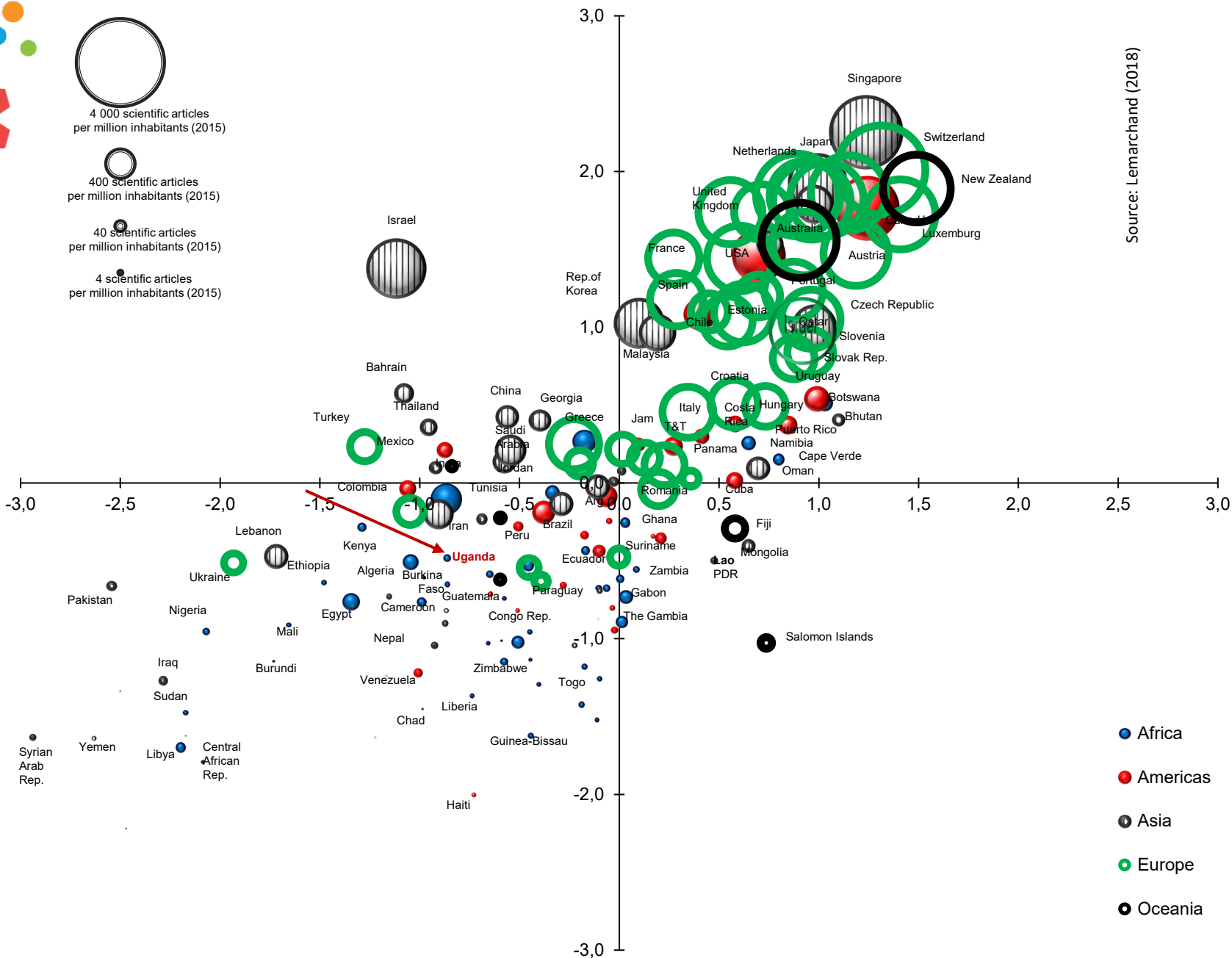
# The "Sisyphus challenge" as a metaphor for the patterns of development observed within LDCs



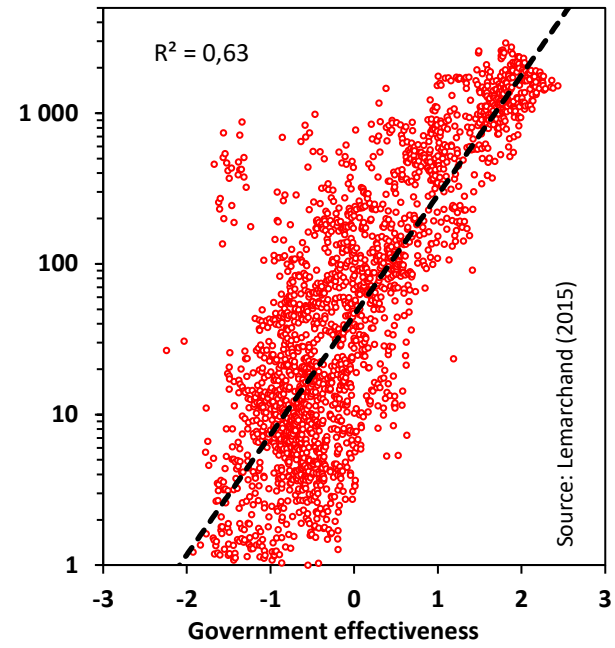
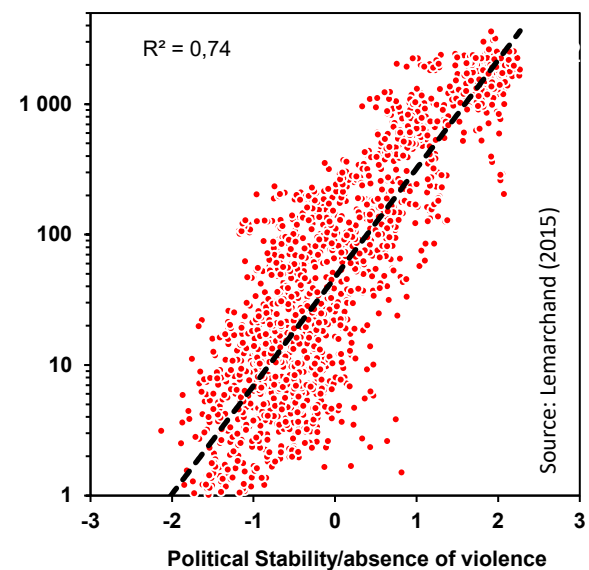
The gods condemned Sisyphus to eternally push a rock to the top of the mountain. whence the stone would fall back of its own weight. They had thought, with some reason, that there is no more dreadful punishment than this futile and hopeless labour.



Government Effectiveness (2015)



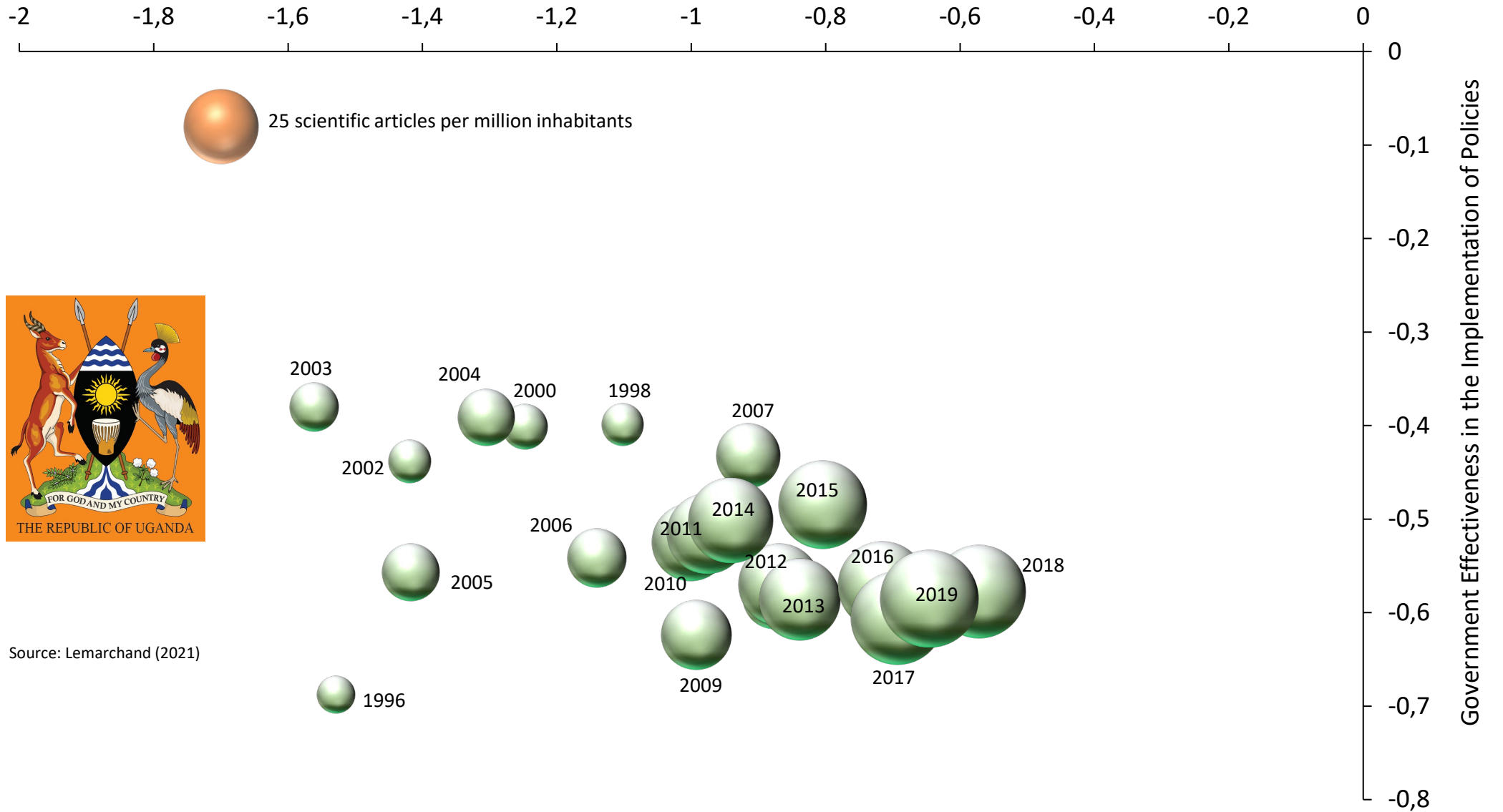
Source: Lemarchand (2018)



1996-2013 around 170 countries  
Approximately 2400 points



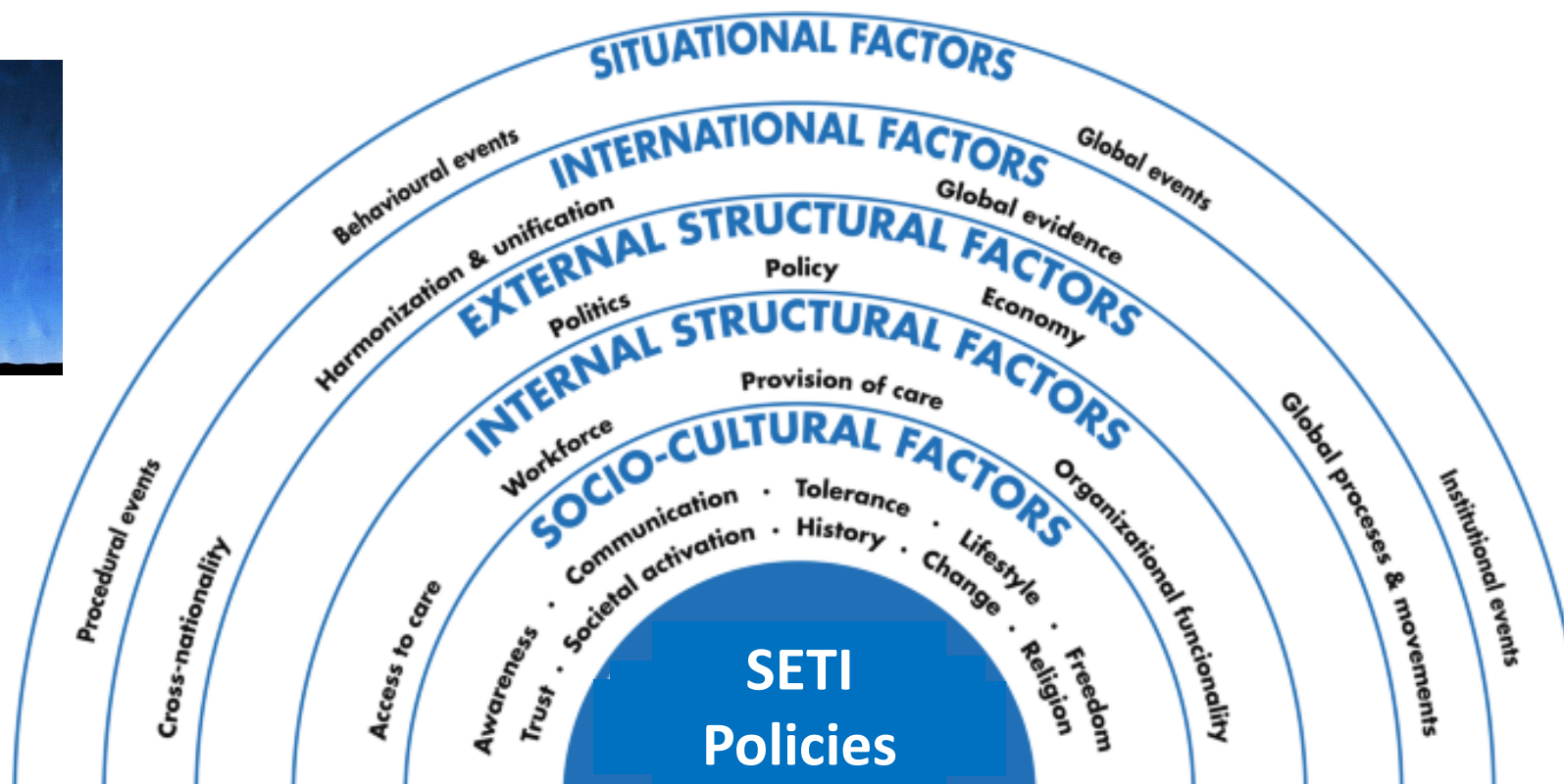
## Political Stability/Absence of Violence and Terrorism







# What about the national contextual factors?







# National contextual policies that *implicitly* affect the performance of SETI policies

Institutional Factors	United States	Japan	Germany
Founding conditions	<ul style="list-style-type: none"> <li>➤ Diversity</li> <li>➤ Abundant resources</li> <li>➤ Huge domestic market</li> <li>➤ Puritanism</li> <li>➤ Market competition</li> </ul>	<ul style="list-style-type: none"> <li>➤ Homogeneity</li> <li>➤ Tokugawa Era (1603-1868)</li> <li>➤ -----</li> <li>➤ Confucianism</li> <li>➤ Strong government</li> </ul>	<ul style="list-style-type: none"> <li>➤ -----</li> <li>➤ Early industrialization</li> <li>➤ Financing through banks</li> <li>➤ Cartelization</li> <li>➤ Worker participation</li> </ul>
Role of the government	<ul style="list-style-type: none"> <li>➤ Encourage market competition</li> <li>➤ Low industrial policy</li> </ul>	<ul style="list-style-type: none"> <li>➤ Encourage agreement</li> <li>➤ High industrial policy</li> </ul>	<ul style="list-style-type: none"> <li>➤ Encourage stability</li> <li>➤ Direct industrial policy</li> </ul>
Legal system	<ul style="list-style-type: none"> <li>➤ Common law</li> <li>➤ Transparent</li> <li>➤ Flexible</li> <li>➤ Adversarial litigation</li> </ul>	<ul style="list-style-type: none"> <li>➤ Civil law</li> <li>➤ Guiding</li> <li>➤ Flexible</li> <li>➤ Conciliatory litigation</li> </ul>	<ul style="list-style-type: none"> <li>➤ Civil law</li> <li>➤ Transparent</li> <li>➤ Inflexible</li> <li>➤ -----</li> </ul>
Capital Market	<ul style="list-style-type: none"> <li>➤ Market for control of ownership</li> <li>➤ Highly developed</li> </ul>	<ul style="list-style-type: none"> <li>➤ Market for stability of ownership</li> <li>➤ Moderately developed</li> </ul>	<ul style="list-style-type: none"> <li>➤ Market for stability of ownership</li> <li>➤ Moderately developed</li> </ul>
Education System	<ul style="list-style-type: none"> <li>➤ Decentralized</li> <li>➤ Diverse</li> </ul>	<ul style="list-style-type: none"> <li>➤ Centralized</li> <li>➤ Homogeneous</li> </ul>	<ul style="list-style-type: none"> <li>➤ Centralized</li> <li>➤ Vocational system</li> </ul>
Culture	<ul style="list-style-type: none"> <li>➤ Individualism</li> <li>➤ Heterogeneous</li> </ul>	<ul style="list-style-type: none"> <li>➤ Collectivism</li> <li>➤ Homogeneous</li> </ul>	<ul style="list-style-type: none"> <li>➤ Moderate collectivism</li> <li>➤ Homogeneous</li> </ul>
Governance system	<ul style="list-style-type: none"> <li>➤ Strong institutional holdings</li> <li>➤ Shareholder oriented</li> <li>➤ One-board system</li> </ul>	<ul style="list-style-type: none"> <li>➤ Cross holdings among firms</li> <li>➤ Stakeholder oriented</li> <li>➤ One-board system</li> </ul>	<ul style="list-style-type: none"> <li>➤ Bank holdings</li> <li>➤ Stakeholder oriented</li> <li>➤ Dual-board system</li> </ul>
Strategic paradigm	<ul style="list-style-type: none"> <li>➤ Short-term oriented</li> <li>➤ External growth</li> <li>➤ High managerial autonomy</li> </ul>	<ul style="list-style-type: none"> <li>➤ Long-term oriented</li> <li>➤ Incremental growth</li> <li>➤ Low managerial autonomy</li> </ul>	<ul style="list-style-type: none"> <li>➤ Long-term oriented</li> <li>➤ Internal growth</li> <li>➤ Moderate managerial autonomy</li> </ul>
Employment relationship	<ul style="list-style-type: none"> <li>➤ Employment-at-will</li> <li>➤ Non-participative</li> <li>➤ Performance and market-based</li> <li>➤ Largest gap between top and bottom</li> </ul>	<ul style="list-style-type: none"> <li>➤ Lifetime employment</li> <li>➤ Participative</li> <li>➤ Seniority-based</li> <li>➤ Smallest gap between top and bottom</li> </ul>	<ul style="list-style-type: none"> <li>➤ Long-term employment</li> <li>➤ Participative</li> <li>➤ Performance and seniority-based</li> <li>➤ Moderate gap between top and bottom</li> </ul>

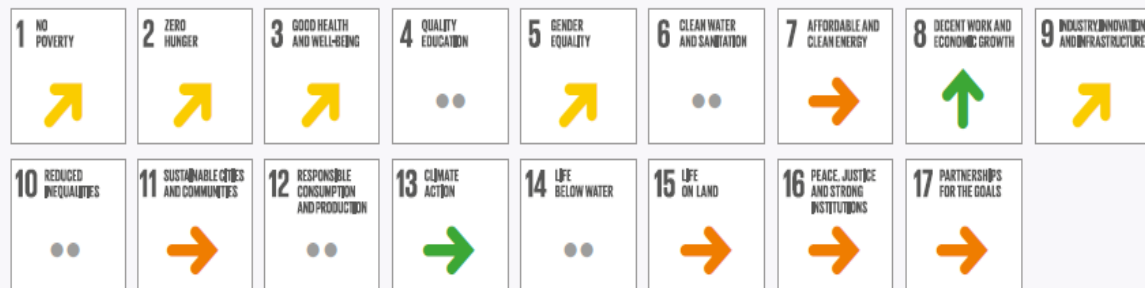


# Sustainable development Goals Trends in Uganda

## ▼ CURRENT ASSESSMENT – SDG DASHBOARD



## ▼ SDG TRENDS



Notes: The full title of Goal 2 "Zero Hunger" is "End hunger, achieve food security and improved nutrition and promote sustainable agriculture".  
The full title of each SDG is available here: <https://sustainabledevelopment.un.org/topics/sustainabledevelopmentgoals>

## ▼ OVERALL PERFORMANCE

Index score

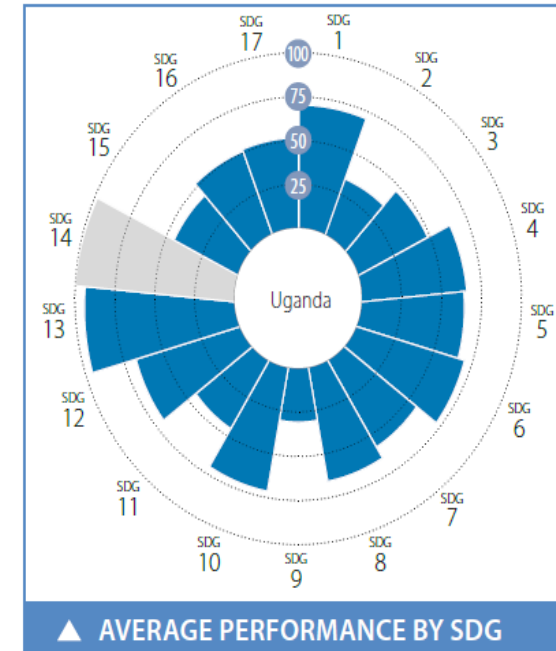


Regional average score



Africa Index Rank

13 (OF 51)



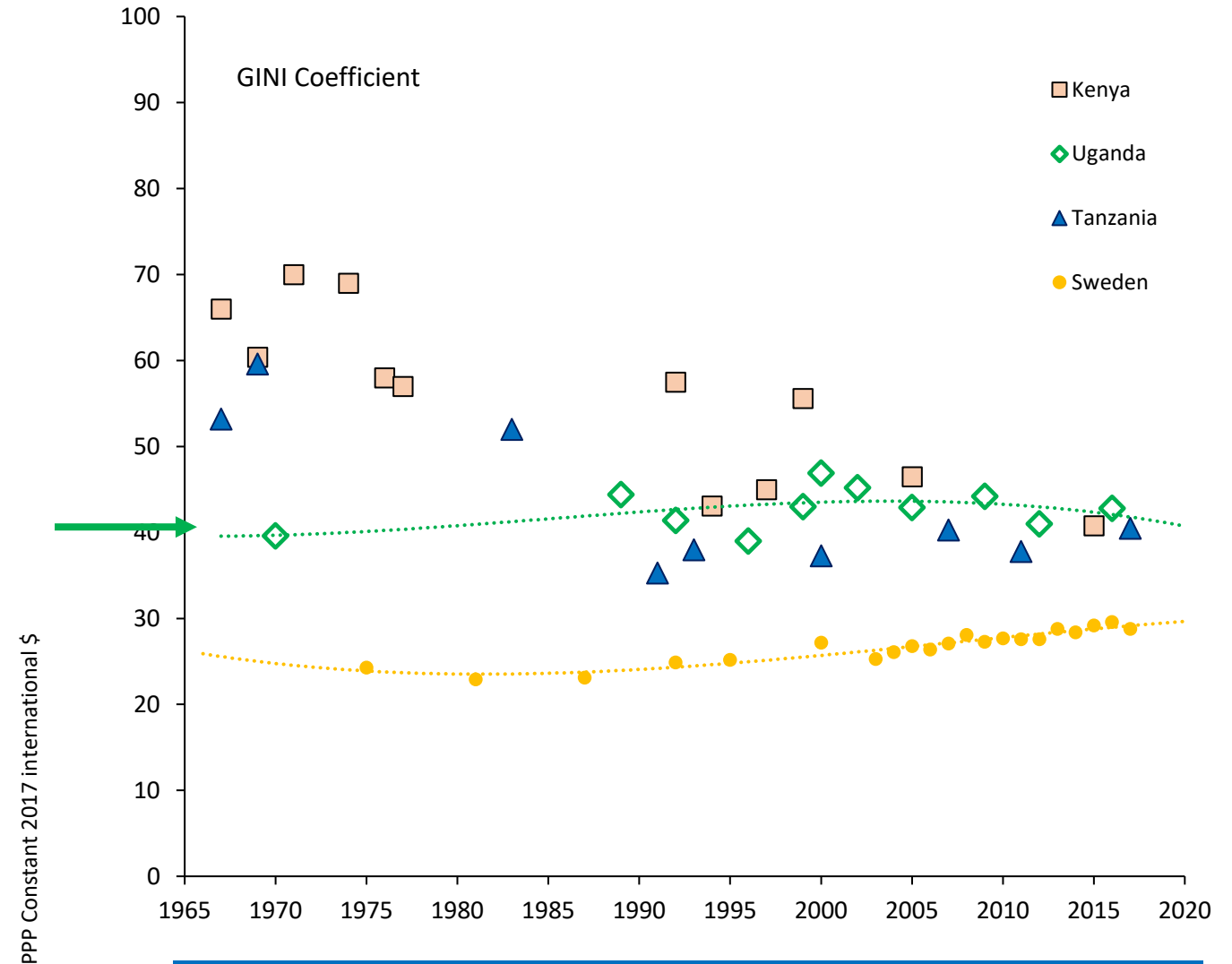
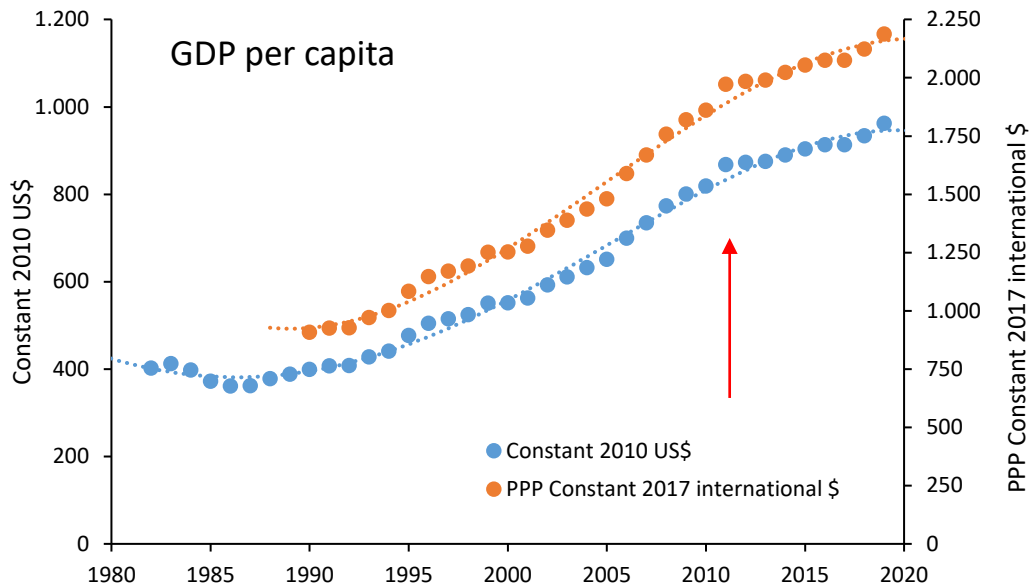
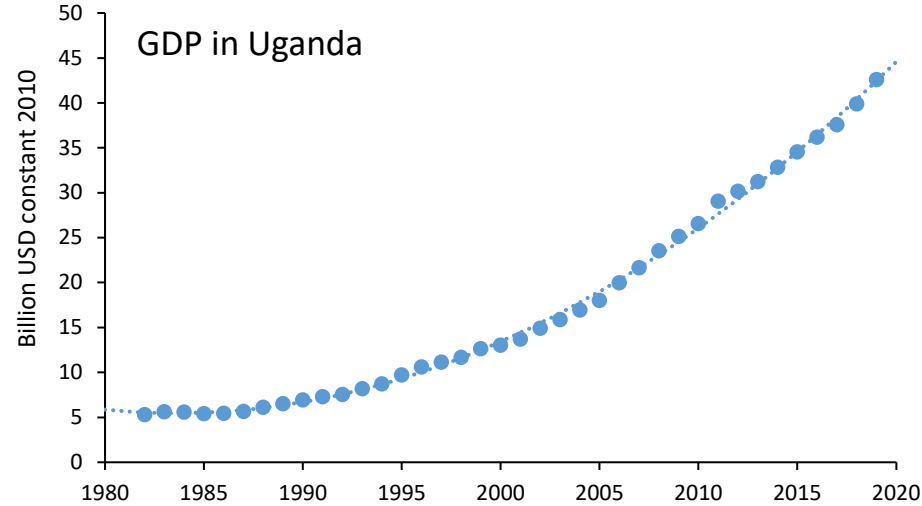
## ▼ COMPARISON WITH OTHER AFRICAN INDICES

	RANK	SCORE
Africa Gender Equality Index (2015)	13 (of 52)	63.4 / 100
Africa Infrastructure Development Index (2016)	27 (of 54)	20.62 / 100
Africa Regional Integration Index (2016)	3 (of 52)	0.67 / 1
Ibrahim Index on African Governance (2017)	19 (of 54)	56.5 / 100

Source: Africa SDG Index and Dashboards Report 2018

# GDP. GDP per capita. and distribution of income (GINI) in Uganda

Source: Lemarchand (2021) based on World Bank historical raw data

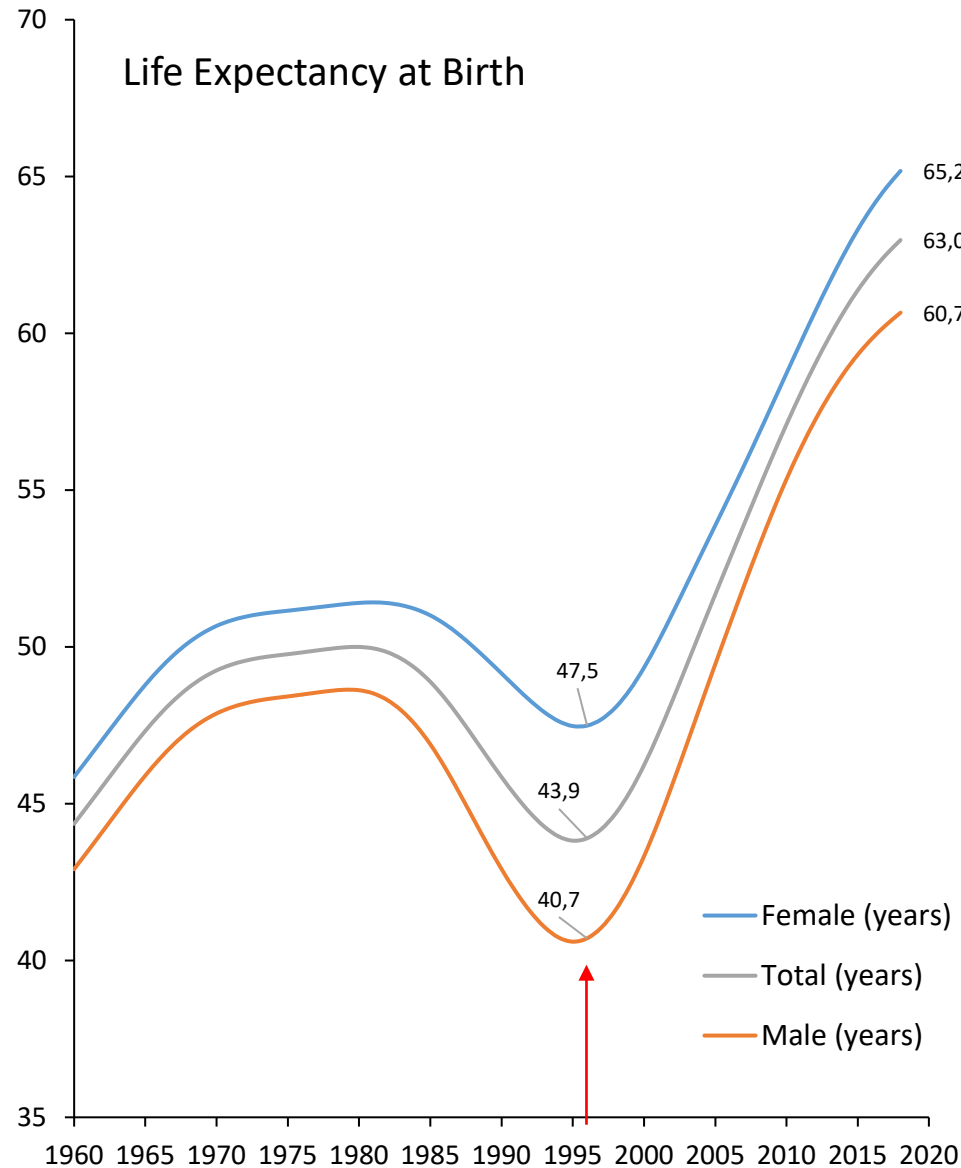
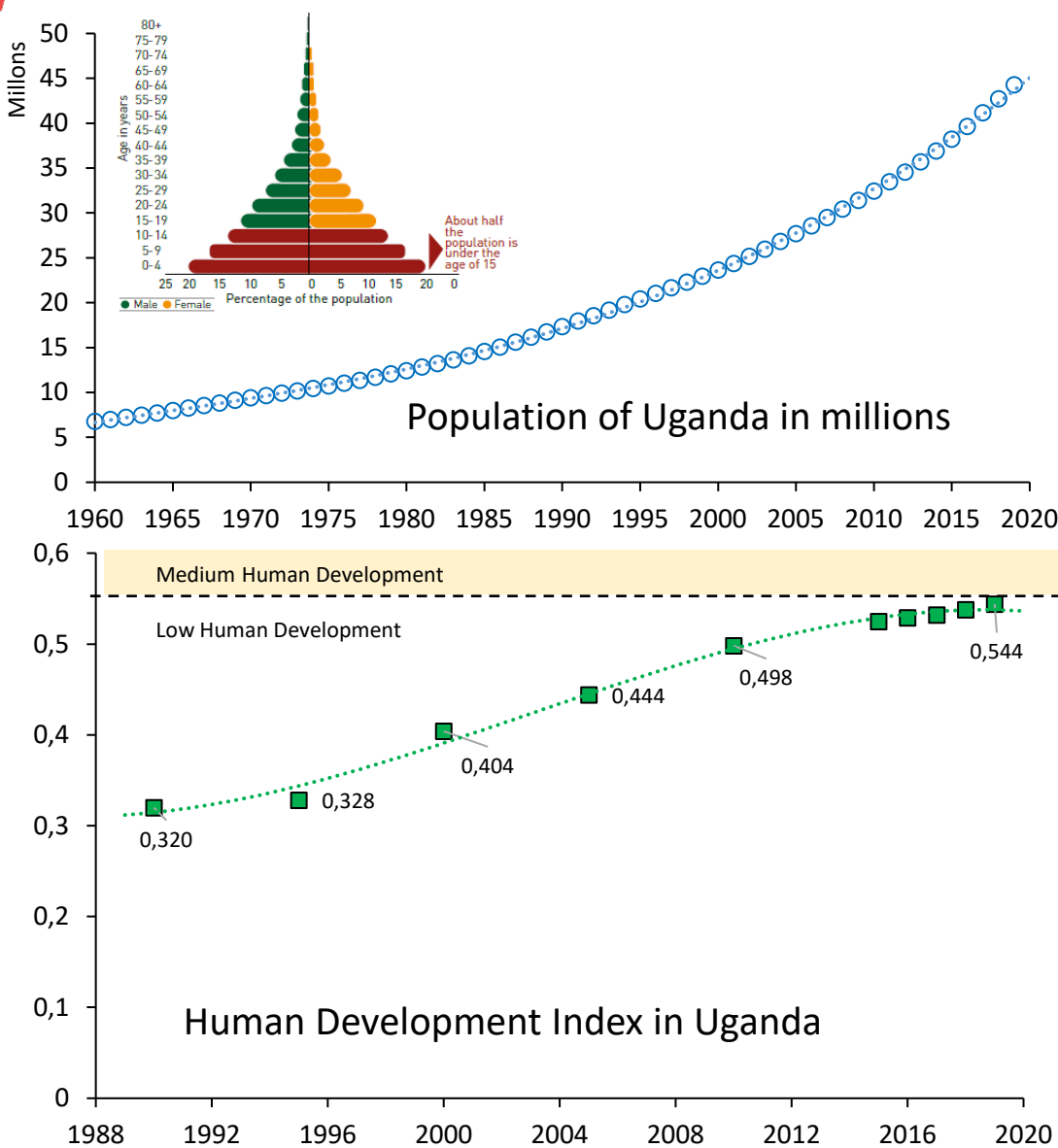


The inequality of Uganda remained constant over the past 50 years



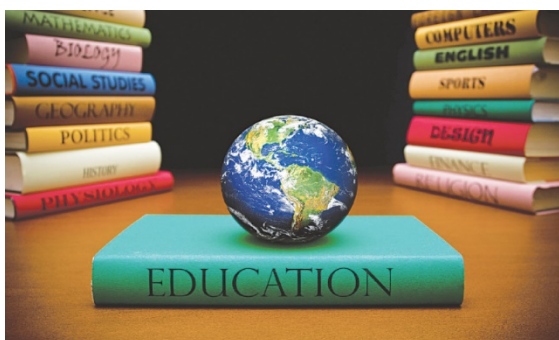
# Human Resources: different indicators in Uganda

Source: Lemarchand (2021) based on UNDP and UN Statistics Division





# Human Resources: Education attainment in Uganda



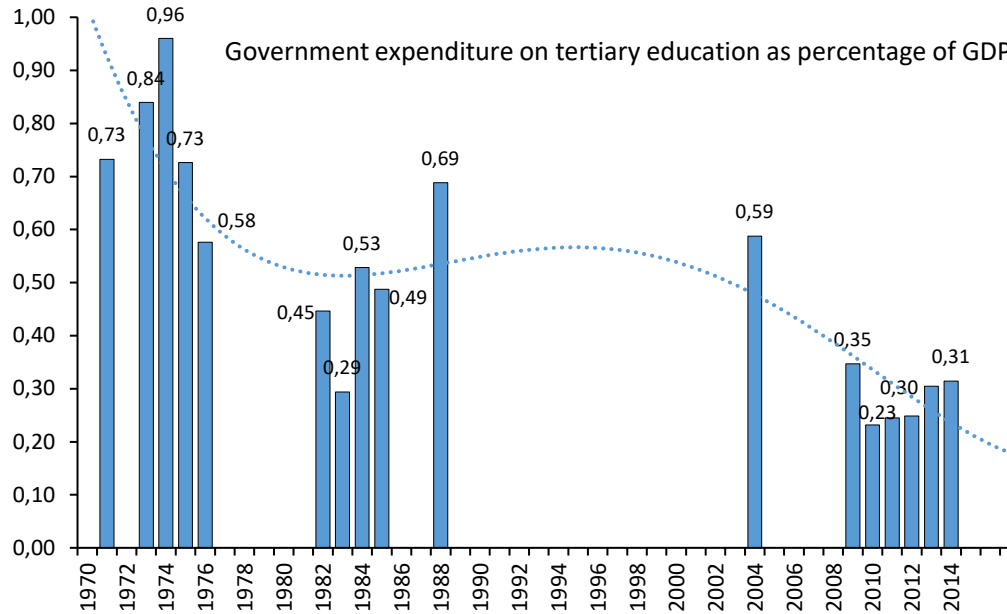
Educational attainment [Population 25 yrs or more, % cumulative]					
	1991	2002	2008	2010	2012
At least completed primary [Total]		30.6%	34.9%	44.3%	32.5%
At least completed primary [Female]		21.8%	34.6%	36.6%	24.0%
At least completed primary [Male]		40.2%	35.2%	50.6%	42.3%
At least completed lower secondary [Total]	11.0%	11.5%	23.6%	28.8%	24.0%
At least completed lower secondary [Female]	6.2%	7.1%	23.2%	22.9%	16.9%
At least completed lower secondary [Male]	16.0%	16.3%	24.0%	33.7%	32.2%
At least completed upper secondary [Total]	1.9%	6.5%	8.8%	10.7%	9.9%
At least completed upper secondary [Female]	0.6%	3.9%	8.7%	8.0%	6.3%
At least completed upper secondary [Male]	3.1%	9.2%	8.8%	12.8%	13.9%
At least completed post-secondary [Total]	0.5%	4.8%	6.9%	8.2%	8.1%
At least completed post-secondary [Female]	0.2%	3.1%	7.0%	6.4%	5.5%
At least completed post-secondary [Male]	0.9%	6.7%	6.8%	9.7%	11.1%
At least completed short-cycle tertiary [Total]		4.8%	6.9%	8.2%	8.1%
At least completed short-cycle tertiary [Female]		3.1%	7.0%	6.4%	5.5%
At least completed short-cycle tertiary [Male]		6.7%	6.8%	9.7%	11.1%
At least Bachelor's or equivalent [Total]			1.8%	3.0%	1.7%
At least Bachelor's or equivalent [Female]			2.0%	1.9%	1.1%
At least Bachelor's or equivalent [Male]			1.7%	3.8%	2.3%

Source: UNESCO Institute for Statistics

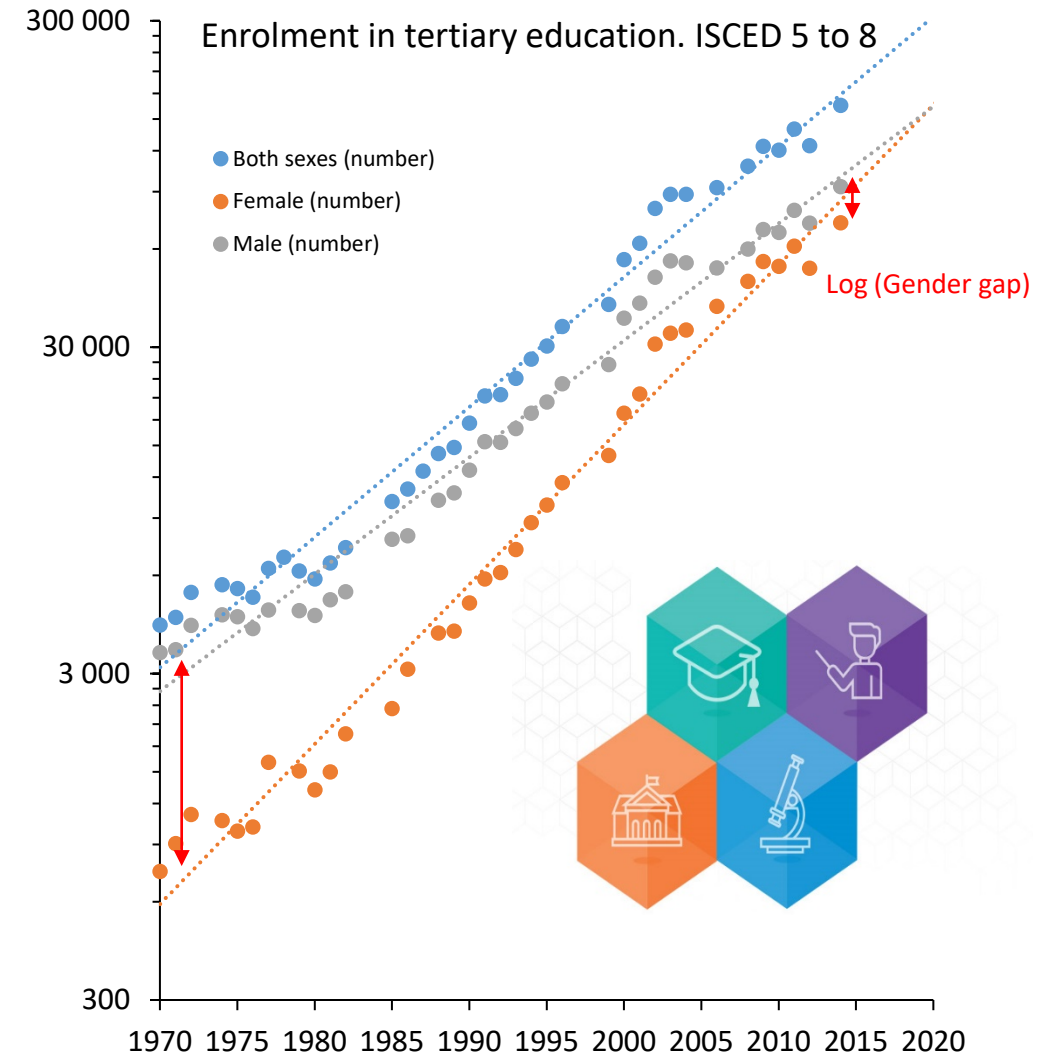




# Human Resources: Higher Education indicators in Uganda



Percentage of graduates. both sexes. by field of knowledge (%)	1999	2000	2004
From programmes other than Science. Technology. Engineering and Mathematics	82.8	85.6	86.0
From Science. Technology. Engineering and Mathematics programmes	17.0	14.4	11.1
Graduating from Agriculture. Forestry. Fisheries and Veterinary programmes	1.9	2.4	2.6
Graduating from Arts and Humanities programmes	7.6	5.6	5.5
Graduating from Business. Administration and Law programmes	26.5	18.4	26.2
Graduating from Education programmes	41.1	44.0	34.8
Graduating from Engineering. Manufacturing and Construction programmes	5.0	7.4	7.9
Graduating from Health and Welfare programmes	1.7	2.6	4.2
Graduating from Information and Communication Technologies programmes	0.5	0.3	1.0
Graduating from Natural Sciences. Mathematics and Statistics programmes	11.6	6.7	2.2
Graduating from programmes in unspecified fields	0.1	0.0	3.0
Graduating from Services programmes	1.8	5.2	1.3
Graduating from Social Sciences. Journalism and Information programmes	2.2	7.4	11.3

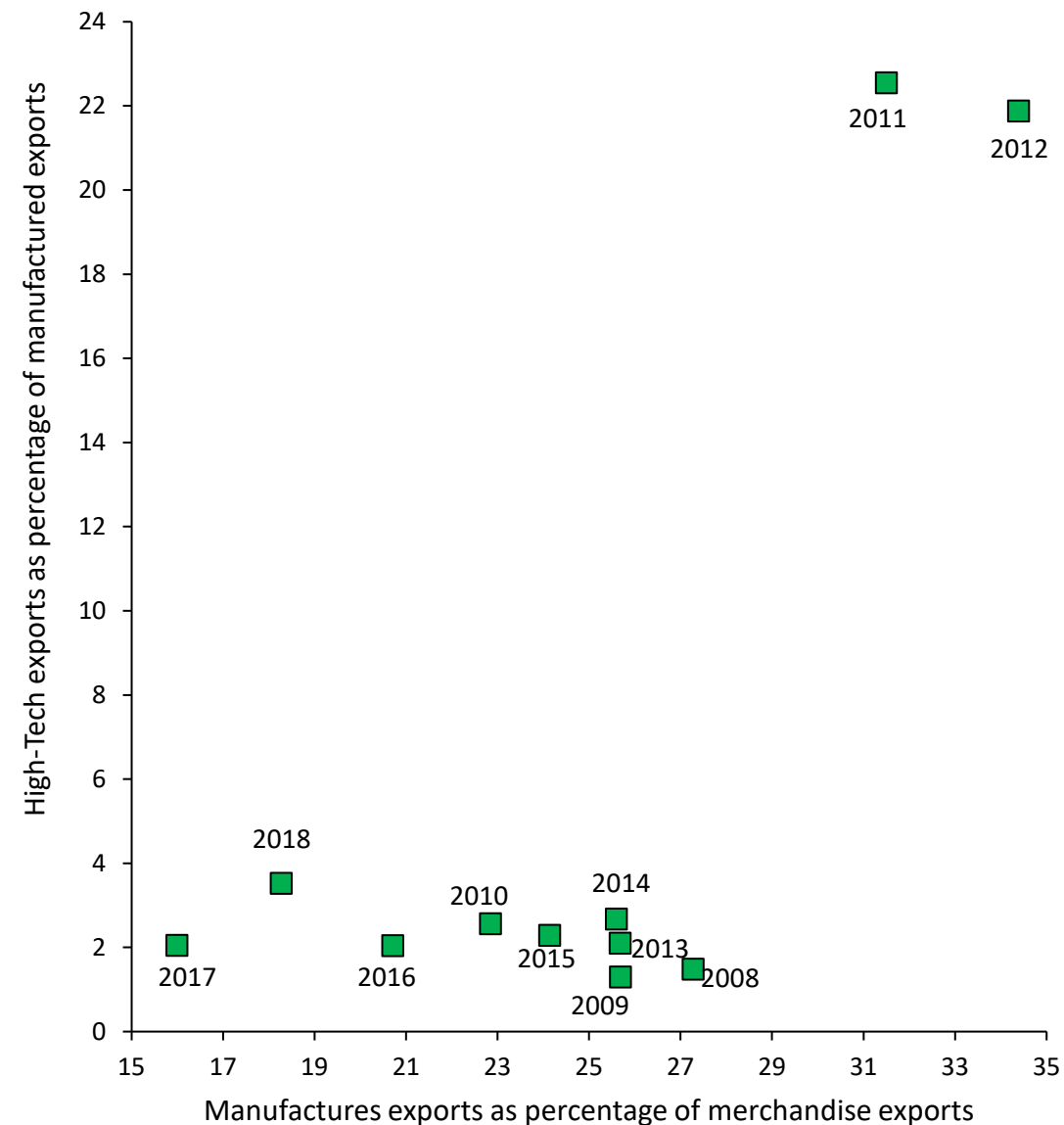
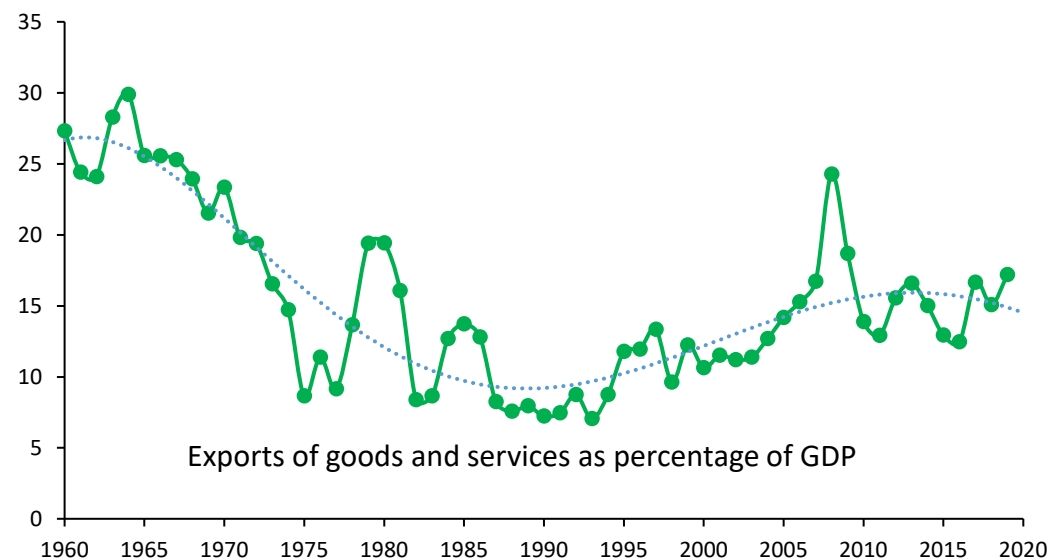
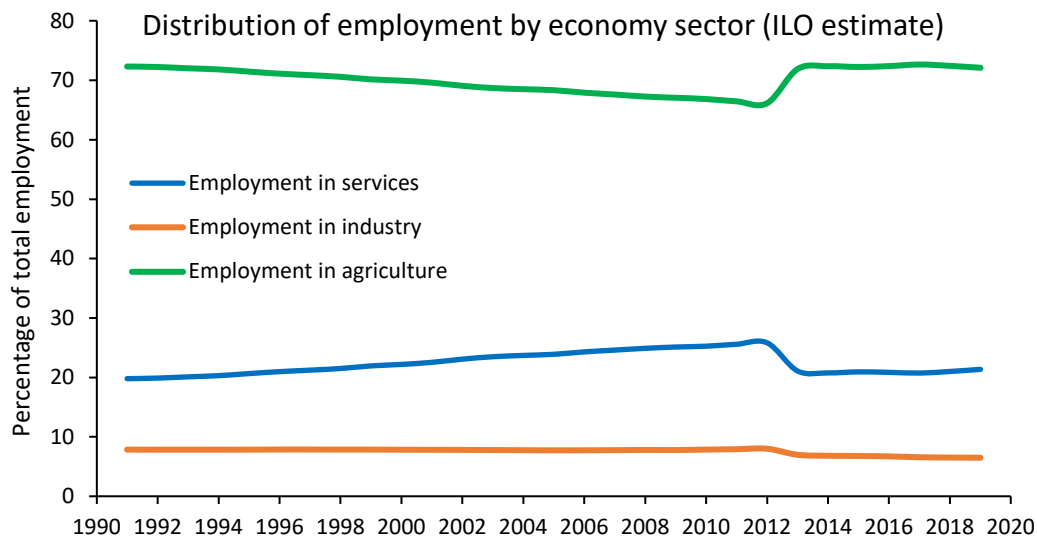


Source: Lemarchand (2021) based on UIS historical raw data on higher education



# Characteristics of the labour activities and exports

Source: Lemarchand (2021) based on ILO and World Bank



Source: Lemarchand (2021) based on ILO and World Bank



## The Product Space Conditions the Development of Nations

C. A. Hidalgo,<sup>1</sup>\*† B. Klinger,<sup>2</sup>\* A.-L. Barabási,<sup>1</sup> R. Hausmann<sup>2</sup>

Economies grow by upgrading the products they produce and export. The technology, capital, institutions, and skills needed to make newer products are more easily adapted from some products than from others. Here, we study this network of relatedness between products, or “product space,” finding that more-sophisticated products are located in a densely connected core whereas less-sophisticated products occupy a less-connected periphery. Empirically, countries move through the product space by developing goods close to those they currently produce. Most countries can reach the core only by traversing empirically infrequent distances, which may help explain why poor countries have trouble developing more competitive exports and fail to converge to the income levels of rich countries.

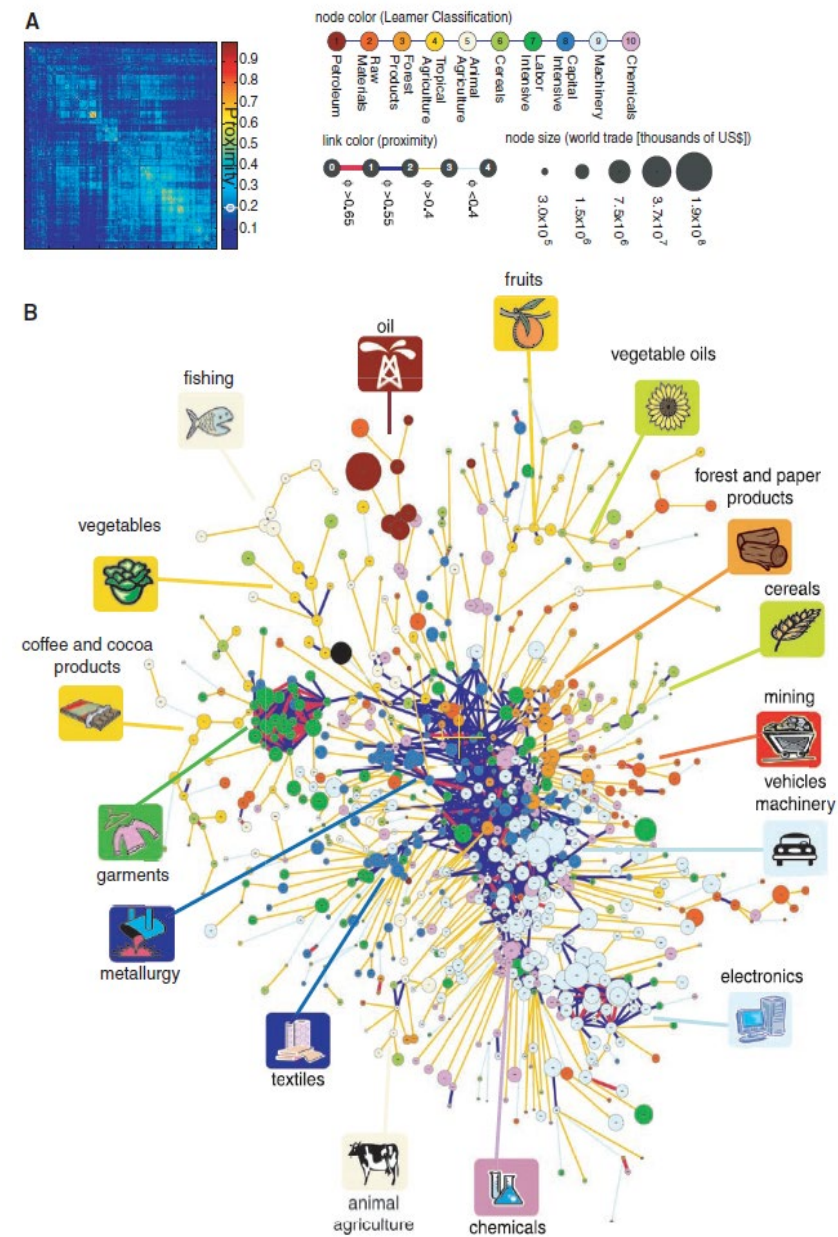
Does the type of product that a country exports matter for subsequent economic performance? The fathers of development economics held that it does, suggesting that industrialization creates spillover benefits that fuel subsequent growth (1–3). Yet, lacking formal models,

mainstream economic theory has been unable to incorporate these ideas. Instead, two approaches have been used to explain a country’s pattern of specialization. The first focuses on the relative proportion between productive factors (i.e., physical capital, labor, land, skills or human capital, infrastructure, and institutions) (4). Hence, poor countries specialize in goods intensive in unskilled labor and land, whereas richer countries specialize in goods requiring infrastructure, institutions, and human and physical capital. The second approach emphasizes technological differences (5) and has to be complemented with a theory of what underlies them. The varieties and quality ladders models (6, 7) as-

sume that there is always a slightly more advanced product, or just a different one, that countries can move to, disregarding product similarities when thinking about structural transformation and growth.

Think of a product as a tree and the set of all products as a forest. A country is composed of a collection of firms, i.e., of monkeys that live on different trees and exploit those products. The process of growth implies moving from a poorer part of the forest, where trees have little fruit, to better parts of the forest. This implies that monkeys would have to jump distances, that is, redeploy (human, physical, and institutional) capital toward goods that are different from those currently under production. Traditional growth theory assumes there is always a tree within reach; hence, the structure of this forest is unimportant. However, if this forest is heterogeneous, with some dense areas and other more-deserted ones, and if monkeys can jump only limited distances, then monkeys may be unable to move through the forest. If this is the case, the structure of this space and a country’s orientation within it become of great importance to the development of countries.

In theory, many possible factors may cause relatedness between products, that is, closeness between trees; such as the intensity of labor, land, and capital (8), the level of technological sophistication (9, 10), the inputs or outputs involved in a product’s value chain (e.g., cotton, yarn, cloth, and garments) (11), or requisite insti-



<sup>1</sup>Center for Complex Network Research and Department of Physics, University of Notre Dame, Notre Dame, IN 46556, USA. <sup>2</sup>Center for International Development, Kennedy School of Government, Harvard University, Cambridge, MA 02139, USA.

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†To whom correspondence should be addressed. E-mail: chidalgo@nd.edu

UGANDA

Total Exports USD \$5.32B Exporter Rank 110<sup>TH</sup> OF 133 Current Account USD -\$2.55B



Introduction

Export Basket in 2018

Uganda exported products worth USD \$5.32 billion in 2018. Exports have grown by an annual average of 3.8% over the past five years, which has been a drag on overall economic growth, as exports represent a shrinking segment of the economy. Non-oil exports have grown by 4.1% annually over the past five years, outpacing the global average growth. Imports totaled USD \$7.11 billion in 2018, leaving Uganda with a trade deficit in goods and services.

Top 3 export destination countries

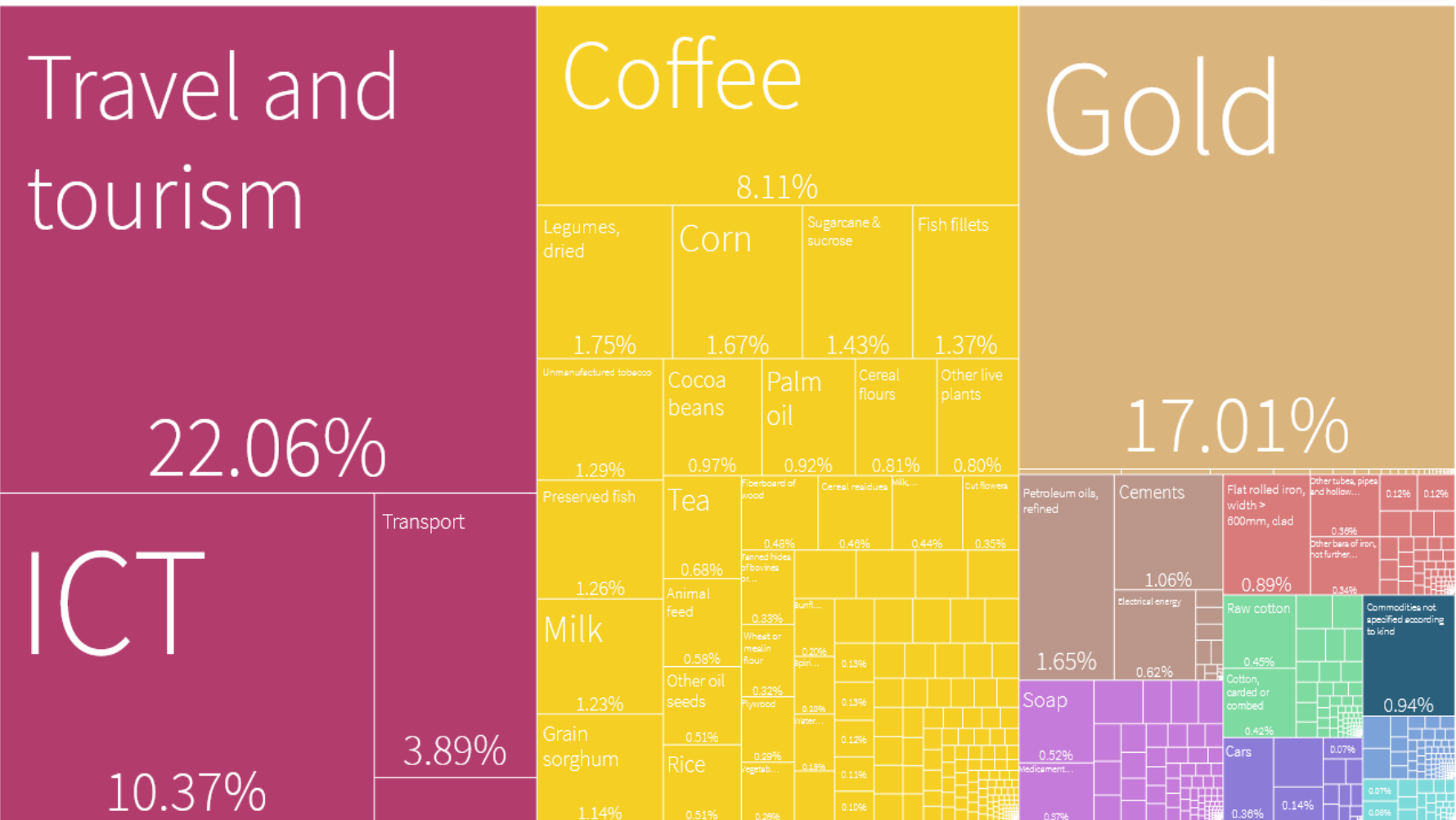
27.89% UAE 15.07% Kenya 10.60% South Sudan

Export Complexity in 2018

Source: The Atlas of Economy Complexity (2021)

Trade Flow Gross

Analyze Further





UGANDA



Export Growth Dynamics

## Growth in Global Market Share

Uganda has not yet started the traditional process of structural transformation. A key source of economic growth, this process reallocates economic activity from low to high productivity sectors. It broadly moves activities out of agriculture into textiles, followed by electronics and/or machinery manufacturing. Global market share in textile exports in Uganda has stagnated over the previous decade; electronics and machinery have yet to take-off in Uganda, limiting its income growth.

Uganda's export growth in the past five years has been driven by Stone. Uganda's growth in Stone has not been by good luck, by simply concentrating in a growing global sector. Rather, export growth in Stone has been driven by expanding its global market share.

Diversification into New Products

Source: The Atlas of Economy Complexity (2021)

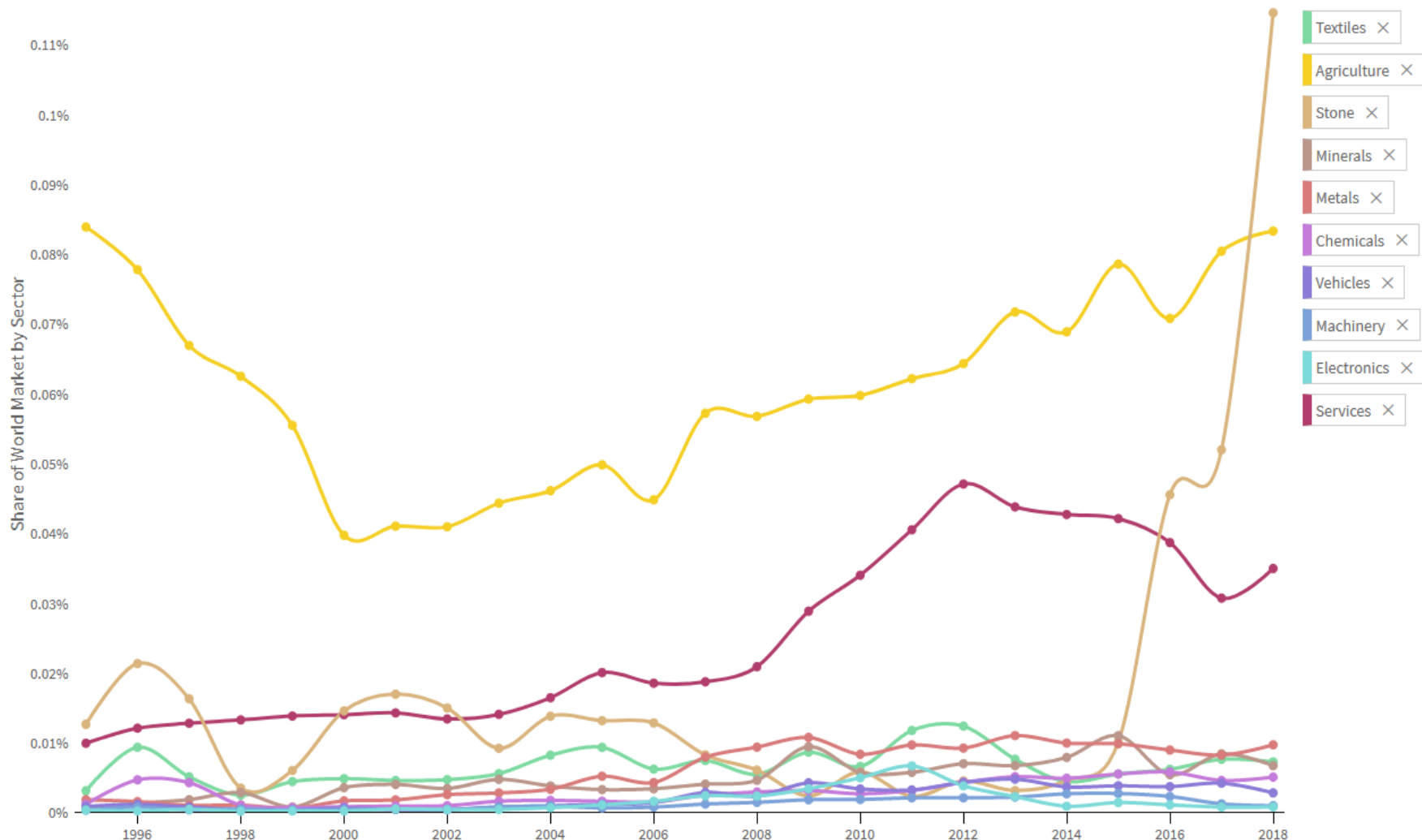
Largest Market Share

Stone, glass and ceramics

Share of Global Trade

0.02%

Analyze Further





UGANDA



↑ Growth in Global Market Share

Diversification into New Products

Economic growth is driven by diversification into new products that are incrementally more complex. Uganda has added 40 new products since 2003 and these products contributed \$5 in income per capita in 2018. Uganda has diversified into a sufficient number of new products but at too small a volume to contribute to substantial income growth.

New Export Products, 2003 - 2018

COUNTRY	NEW PRODUCTS	USD PER CAPITA	USD (TOTAL VALUE)
Uganda	40	\$5	\$194M
Ethiopia	32	\$2	\$231M
Tanzania	16	\$6	\$358M
Kenya	11	\$5	\$263M

↓ What is the Product Space?

Source: The Atlas of Economy Complexity (2021)

Economic Diversification Grade A

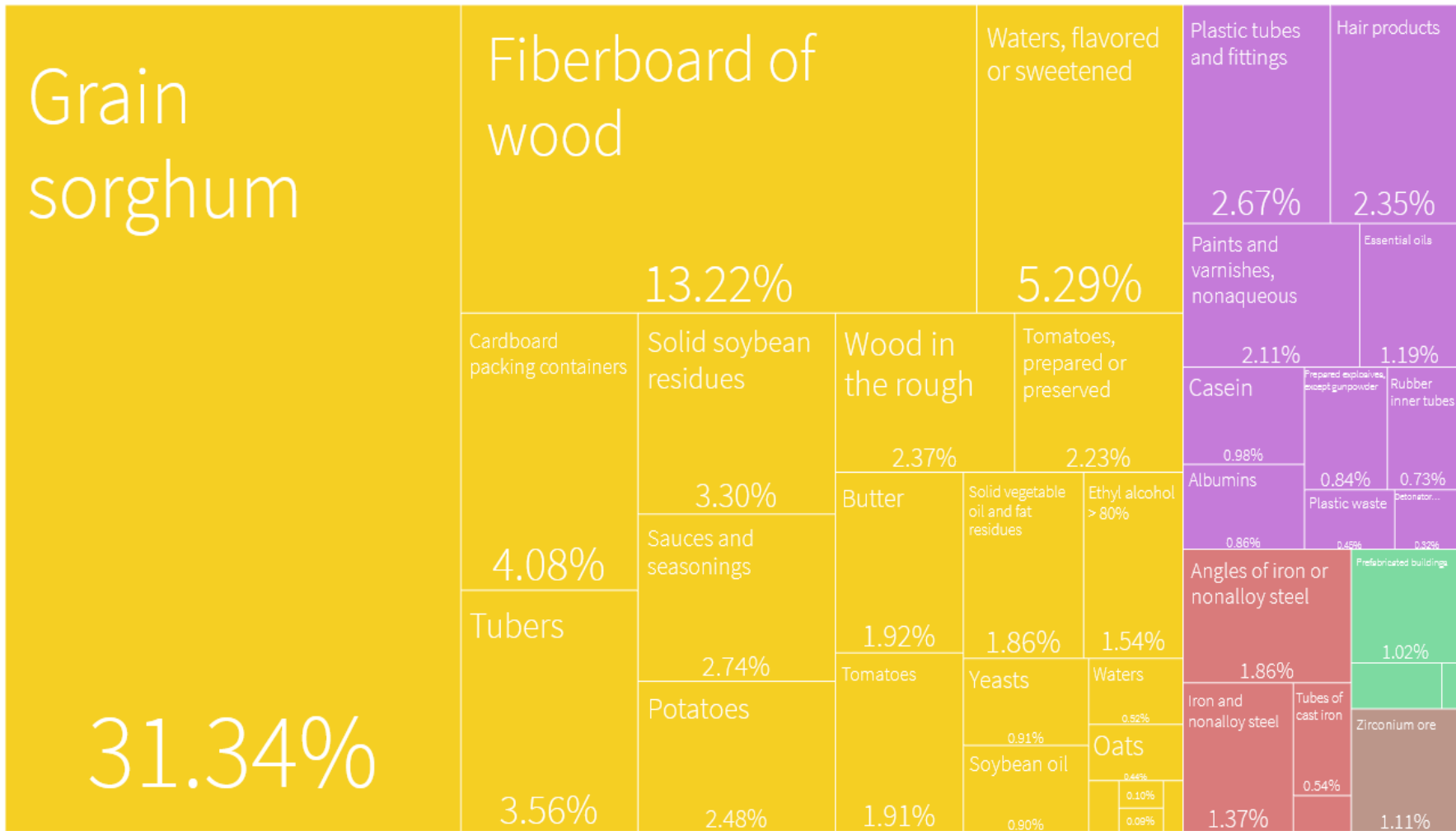
Diversity Rank 60<sup>TH</sup> OF 133

Rank Change ↑ 28 OVER 15 YEARS

New Products Exported, 2003 - 2018

Colored by Sector

→ 2018 Export Basket  
→ New Export Proportion (Added in 15 years)



UGANDA



What is the Product Space?

## Uganda's Product Space

Countries are more successful in diversifying when they move into production that requires similar knowhow and builds on existing capabilities.

Here, Uganda's Product Space illustrates the relatedness of its exports and potential paths to diversify its economy.

How to read →

Colored Node:  
→ Product that the country exports

Gray Node:  
→ Product that the country does not export

Recommended Strategic Approach

Source: The Atlas of Economy Complexity (2021)

Export Products 130 (RCA>1)

Complexity Outlook Index 64<sup>TH</sup> OF 133

Sizing of Dots

World Trade

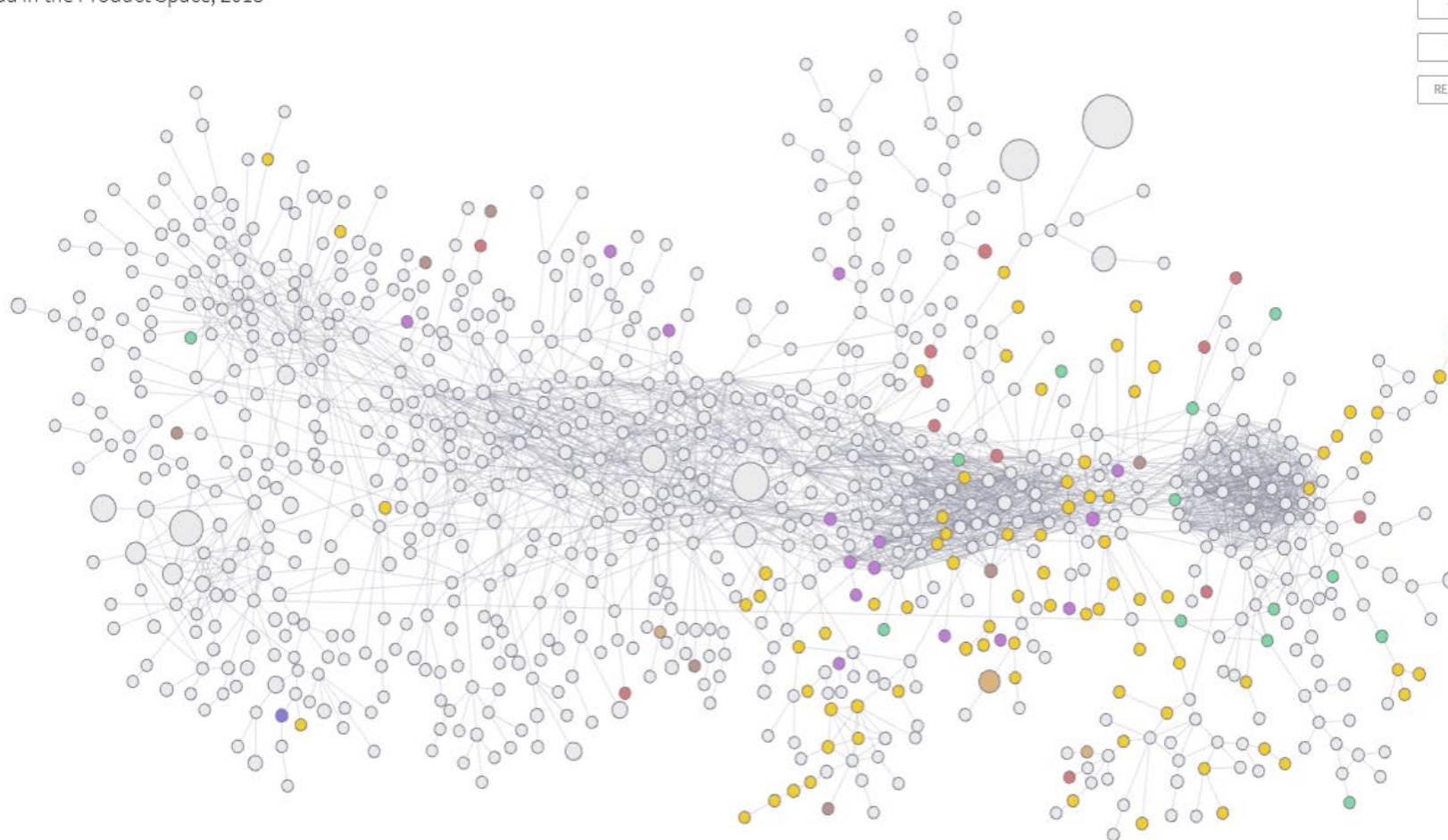
Analyze Further

+ ZOOM

- ZOOM

RESET ZOOM

Uganda in the Product Space, 2018



PRODUCT  
SECTORS



UGANDA



Potential Growth Opportunities

New Product Opportunities

Strategic Bets Approach

Balanced Portfolio

Given its current exports, some of the sectors with high potential for new diversification in Uganda are: Industrial Machinery and Articles of iron or steel. Scroll through the table for additional possibilities.

Uganda in Summary

Source: The Atlas of Economy Complexity (2021)

Top 50 Products Based on Strategy Approach

Click on product names to explore in the Atlas

PRODUCT NAME	"NEARBY" DISTANCE	OPPORTUNITY GAIN	PRODUCT COMPLEXITY	GLOBAL SIZE (USD)	GLOBAL GROWTH 5 YR
Prepared culture media for micro-organisms (3821 HS4)	◆◆◆◆◆	◆◆◆◆◆	◆◆◆◆◆	\$2.22B	↑ 56%
Glues and adhesives (3506 HS4)	◆◆◆◆◆	◆◆◆◆◆	◆◆◆◆◆	\$12.1B	↑ 16.8%
Machinery parts, not containing electrical features, n.e.c. (8485 HS4)	◆◆◆◆◆	◆◆◆◆◆	◆◆◆◆◆	\$10.4B	↑ 10.7%
Other lifting machinery (8428 HS4)	◆◆◆◆◆	◆◆◆◆◆	◆◆◆◆◆	\$32.4B	↑ 22%
Central heating boilers (8403 HS4)	◆◆◆◆◆	◆◆◆◆◆	◆◆◆◆◆	\$7.14B	↓ 2.3%
Other agricultural machinery (8436 HS4)	◆◆◆◆◆	◆◆◆◆◆	◆◆◆◆◆	\$7.65B	↑ 17.2%
Other parts for machines and appliances (9033 HS4)	◆◆◆◆◆	◆◆◆◆◆	◆◆◆◆◆	\$2.74B	↓ 11.6%
Harvesting or agricultural machinery (8433 HS4)	◆◆◆◆◆	◆◆◆◆◆	◆◆◆◆◆	\$20.9B	↑ 2.2%
Parts for use with hoists and excavation machinery (8431 HS4)	◆◆◆◆◆	◆◆◆◆◆	◆◆◆◆◆	\$56.2B	↓ 12.7%
Pigments, nonaqueous (3212 HS4)	◆◆◆◆◆	◆◆◆◆◆	◆◆◆◆◆	\$2.35B	↑ 1%
Newspapers, journals and periodicals (4902 HS4)	◆◆◆◆◆	◆◆◆◆◆	◆◆◆◆◆	\$3.46B	↓ 34.1%
Other plastic plates, sheets etc. (3921 HS4)	◆◆◆◆◆	◆◆◆◆◆	◆◆◆◆◆	\$26.8B	↑ 13.5%



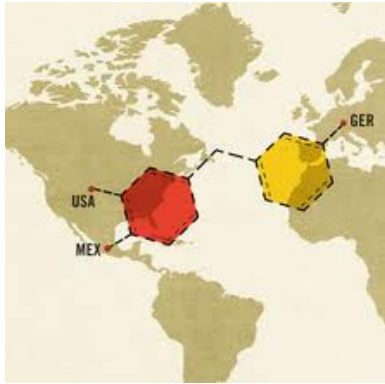
# Time for questions



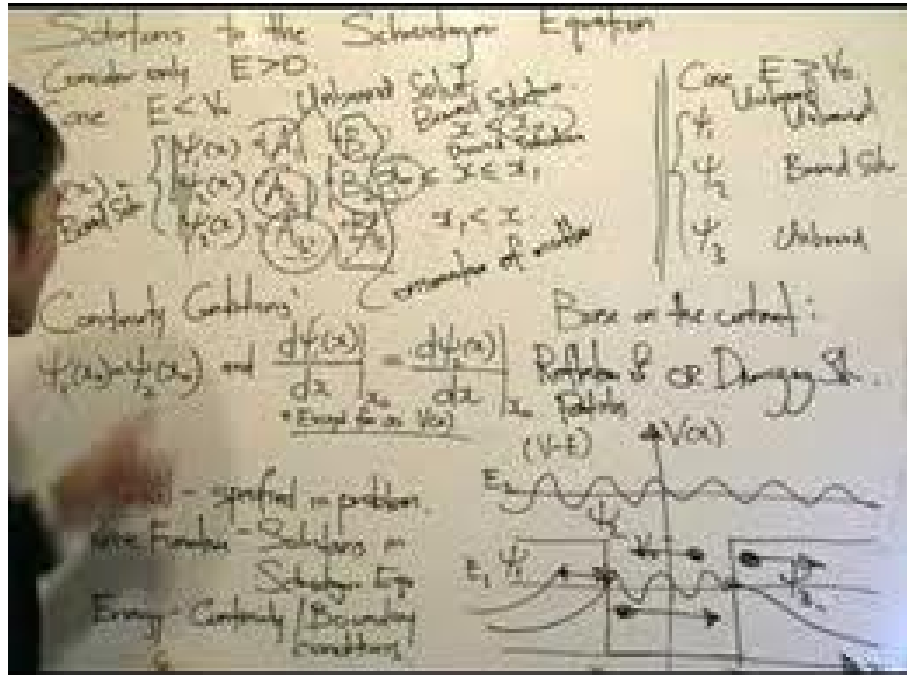
**First run**





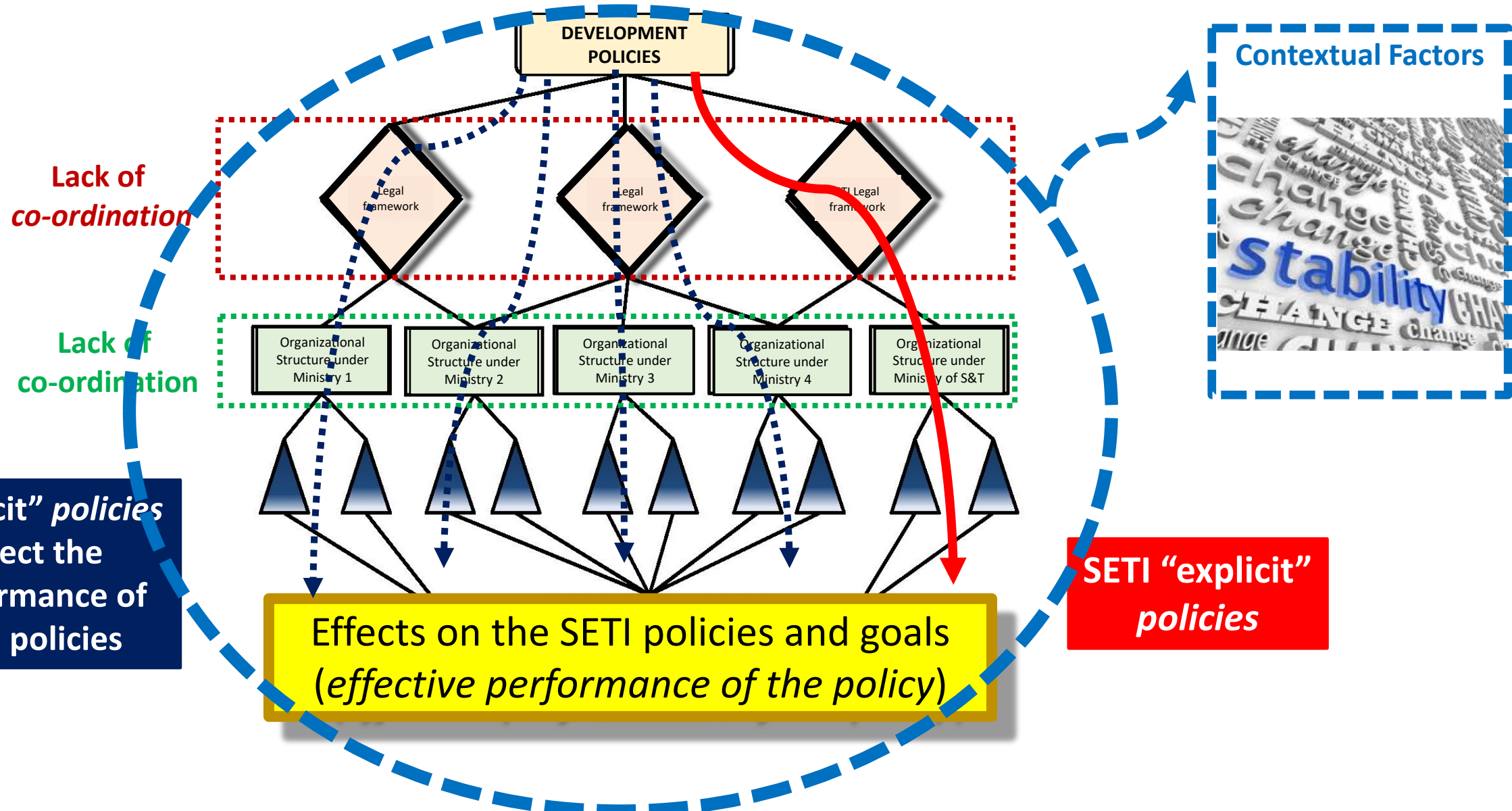


# What are *implicit* policies? ... and How we measure them?





# The GO→SPIN mapping represents the interaction between "explicit" policies. "implicit" policies and their contextual factors



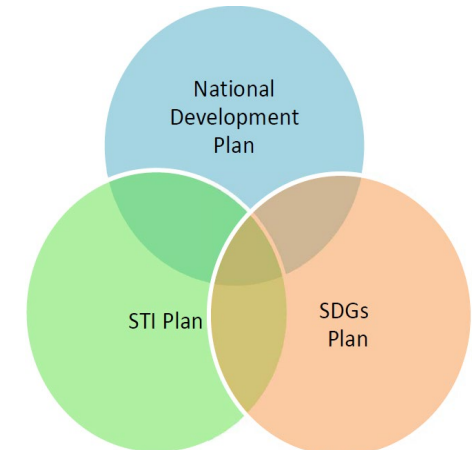
The GO→SPIN mapping represents the interaction between "explicit" policies.  
"implicit" policies and their contextual factors by comparing plans



Source: UN IATT (2020)



**Implicit STI policies and instruments:** Here the purpose is to produce effects on variables that do not belong to the group of SETI functions and activities but. as a result. unintended effects happen to the latter. Such unintended effects may be termed “side effects” or “implications.” A better knowledge of them may enable policymakers to minimize or eliminate their negative influence or to heighten their positive effects. and eventually to transform these implicit policies and their related instruments into purposeful indirect policies and instruments for science and technology





- An analysis of the SETI implicit policies in general laws (on industrialization. mining. foreign investment. etc.) should uncover the main implications or side effects for science technology and innovation functions and activities.



- The first step would be to identify those policies oriented to areas *other* than SETI that could have an important impact on them. For this there is a need for a certain understanding of the way the SETI system functions in the country. through an examination of its place in relation to the economic. social. and educational systems.







**Economy:** *primarily directed to the functioning of the economic system*

- Finance (credit. interest rates).
- Fiscal (taxation. exchange rates. exchange control);
- Internal trade (tariff and nontariff barriers);
- Domestic trade (prices. marketing. government-procurement);
- Wages and labour compensation policies;
- Foreign investment. compensation and nationalization;
- Economic development policies;
- Specific industrial policies;
- Legal and general instruments;
- Policies designed to foster regional development.







## Sustainability policies:

- Policies for the exploitation and preservation of natural resources;
- Policies on environmental control. pollution;
- Policies to promote green societies;
- Policies to promote green production of goods and services;
- Policies to promote green consumption patterns.

## Demographic and social:

- Health care;
- Mortality rates;
- Population control;
- Income policies.
- Distribution of income;
- Policies increasing social mobility.





## Human resources:

- Education system (literacy. primary. secondary. TVET. etc)
- Higher education policies (universities. training institutes. management training. post-doctoral training);
- Fellowship ad scholarship policies;
- Industrial training and retraining. technician training; etc.
- Policies for the use of foreign personnel;
- Policies toward emigration of professionals.
- Policies or repatriation and networking with skilled manpower (brain-drain vs. brain-gain policies);
- Policies for the promotion of human resources;
- Salary structures and awards;
- Mobility.





## Cultural policies:

- Mechanisms which modify general value structures. attitudes. norms. etc..
- Including the position of women (gender equality policies);
- Policies fostering a knowledge society;
- Social appropriation of science (popularization of STI activities; science museums; science contests or Science Olympiads among the youth. etc.);
- Policies modifying the structure of mechanisms and procedures conferring status and prestige. etc.





## Characteristics of Government economic policies

Credit policies biased toward capital equipment. particularly when foreign aid and credit are involved

Fiscal incentives geared toward promoting additional capital investments (tax credits. tax exemptions. etc.)

Social policies that make labour expensive (social security. unemployment funds. medical benefits. etc.)

Overvaluation of exchange rates (making imports cheaper)

Gross inequalities in the distribution of income

Conservationism of local entrepreneurs

Protectionism. oligopolies. myopic price controls

## Implicit impact within SETI activities

Capital-intensive technologies are preferred over capital saving or labour-using technologies.

Investment in equipment becomes more attractive than investment in working capital to enlarge labour force

Demand for capital equipment. machinery and even intermediate products is oriented outward. particularly to developed countries

Importing foreign machinery and equipment becomes attractive

Industrial activities are oriented toward producing goods for a small segment of the population with high income. Technologies are geared to producing a large variety of goods for this population segment and import for this purpose.

Distrust for local STI capabilities. preference for well known and proved technologies (generally foreign). Risk capital for new and advanced technologies are not available.

Entrepreneurs have no real incentives to reduce costs and operate more efficiently. hence there is little demand for local research and innovation activities







# Time for questions



**Second run**





GLOBAL OBSERVATORY OF SCIENCE, TECHNOLOGY  
AND INNOVATION POLICY INSTRUMENTS

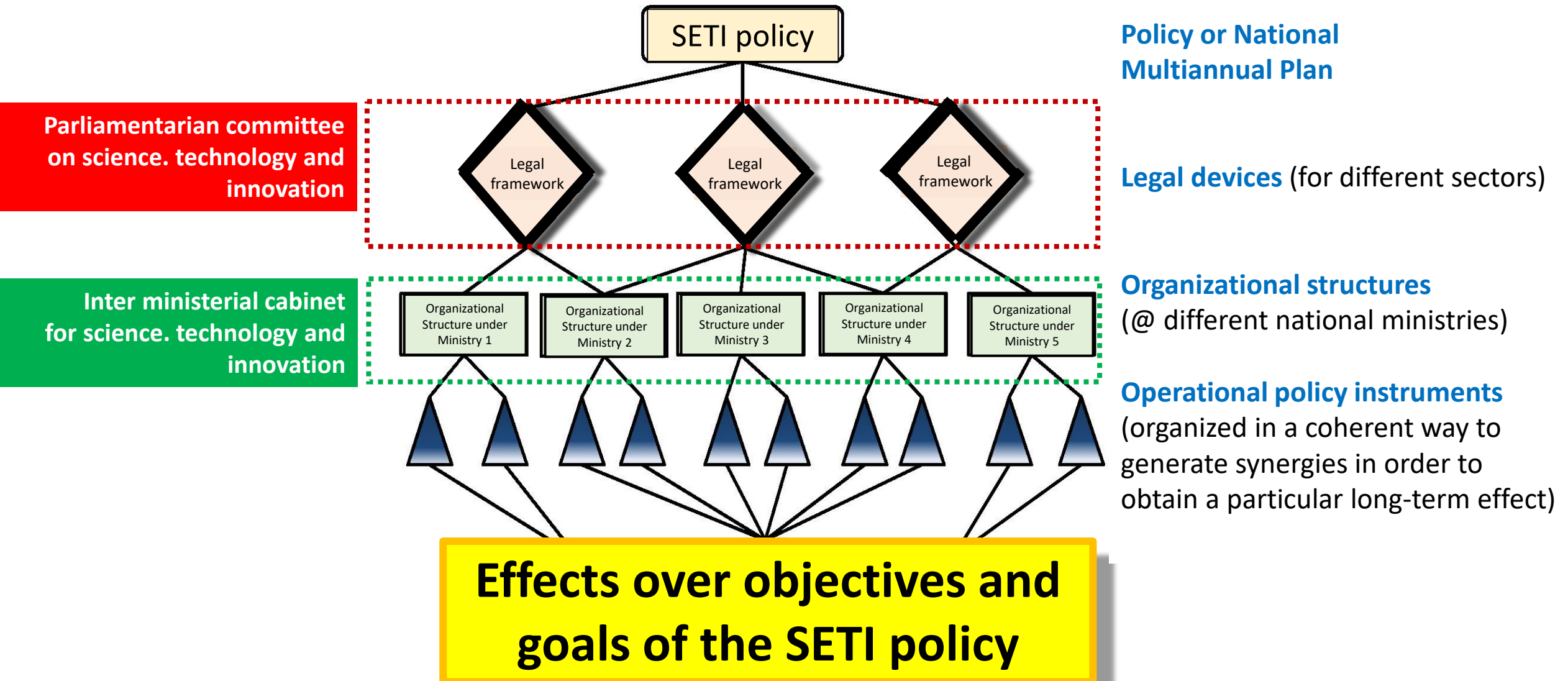
The structure of  
GO→SPIN analytic  
units

Explicit  
policies





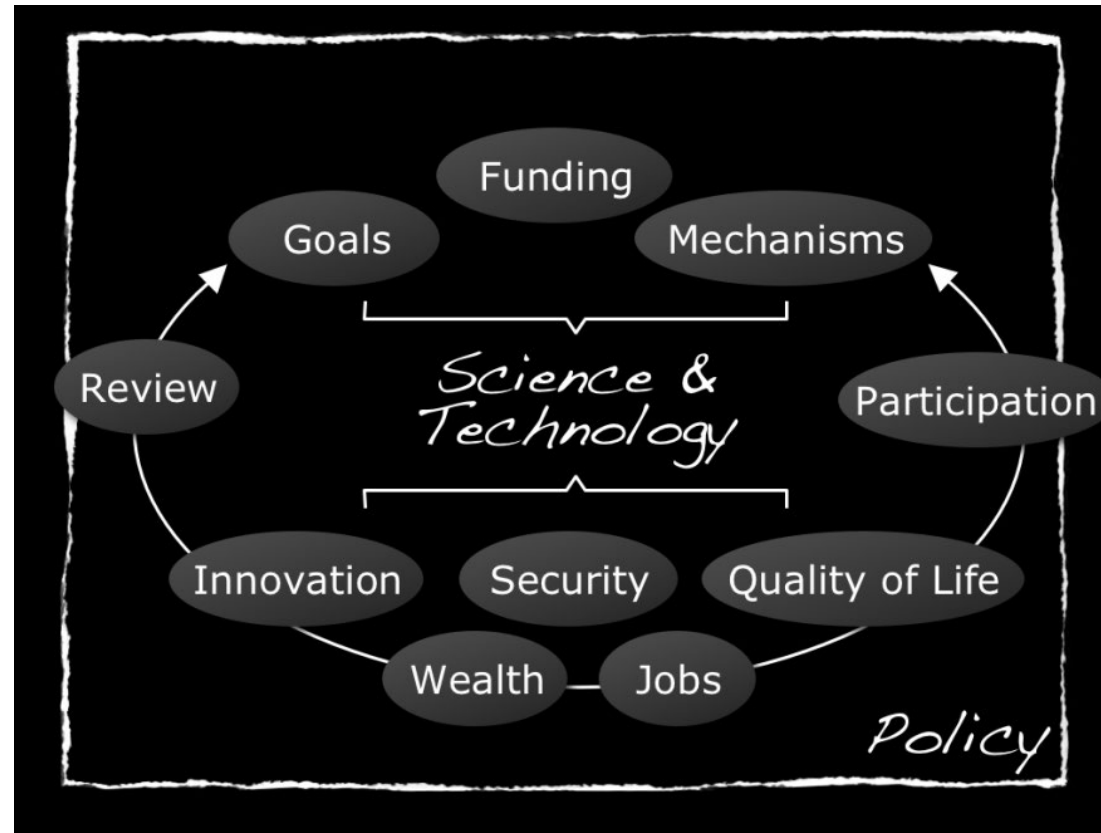
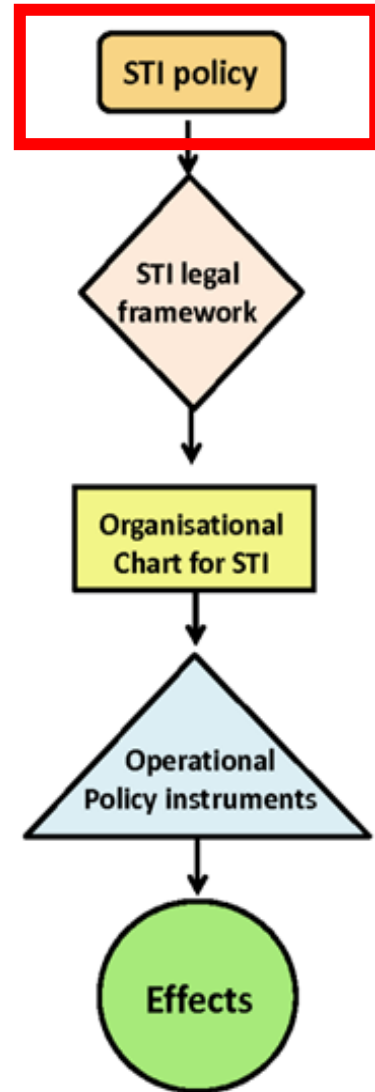
# Golden Rule for the implementation of SETI policies





# Analysing the content of the SETI “explicit” policies

## DESIGNING SETI POLICIES AND SETI MULTIANNUAL NATIONAL PLANS



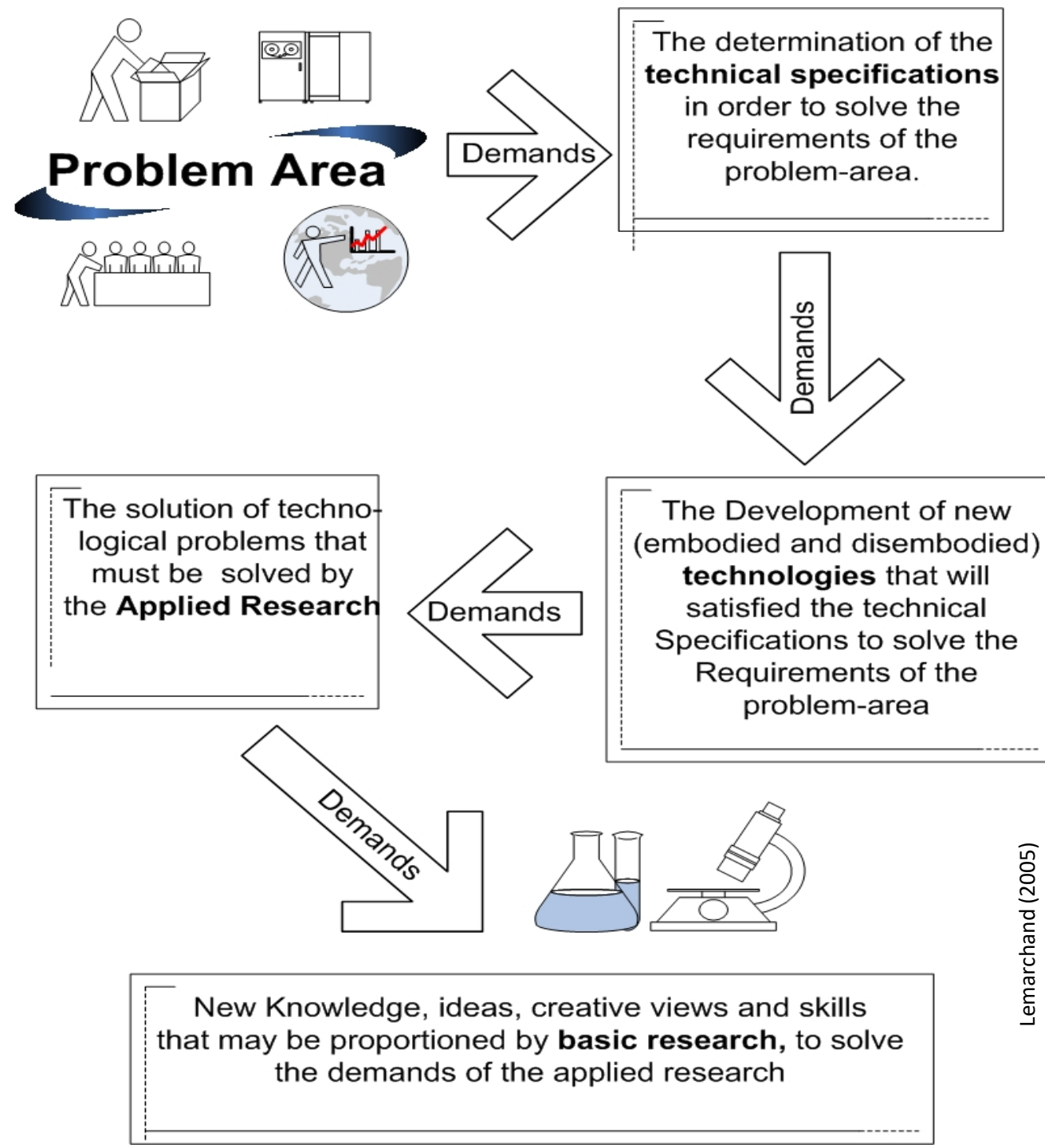
**Explicit Policy**





# Priority setting mechanisms for SETI policies

*Focusing on societal demands*





# Content analysis of the “explicit” STI policy

automated data mining survey  
responses com... ter transcripts  
qualatativ... root cause  
classification... insights  
ad-hoc an... product  
reviews ser... it vol... of the  
customer dashboards consumer  
trends ad-hoc analysis early warning

text analysis

1. Policy vision:
2. Policy mission:
3. Policy goals:
4. Policy objectives:
5. Priorities at the strategic level of the STI policy:
6. Normative planning strategies of the policy:
7. Policies related to the supply of STI:
8. Policies related to demand for STI:
9. Policies to foster networking between the STI supply and demand sides:
10. Regional and international dimensions of STI policies:
11. Monitoring, assessment, technological forecasting and prospective scenarios:
12. STI policy start date:
13. Timespan for STI policy planning:
14. Link:





## Ministry of Science and Technology goals to reach by Brazil's 2022 bicentennial

- ▶ Increase investments in R&D to 2% of gross domestic product, with more than half from private enterprise
- ▶ Double to 340 000 the number of scholarships awarded annually by the ministries of Science and Technology and Education
- ▶ Grow the research community to 450 000, or 2 researchers per 1000 inhabitants, up from the current 8 per 10 000
- ▶ Generate 5% of the world's production of scientific papers
- ▶ Triple the percentage of higher-education graduates in engineering to 15%
- ▶ Master the technologies of microelectronics, pharmaceutical production, nanotechnology, biotechnology, and a host of green technologies
- ▶ Increase by 10-fold the number of innovative companies, from 3% of industrial companies to 30%
- ▶ Increase by a factor of 10 or more the number of patents a year, to at least 4000
- ▶ Ensure independence in the production of nuclear fuel and reactor technologies
- ▶ Master the manufacturing technologies of satellites and launch vehicles

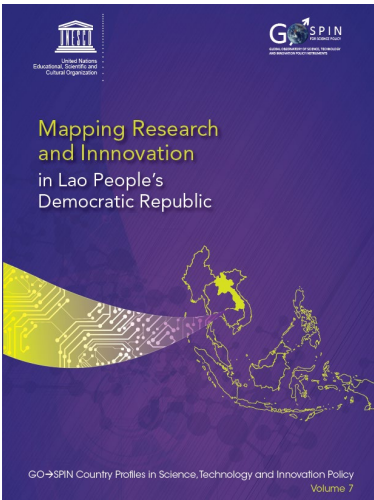




**Priorities at the strategic level of the STI policy:** (1) Establish and begin construction of a science and technology zone by 2018; (2) allocate budget for research projects related to promoting sustainable development that covers 25% of the annual research budget; (3) adopt and apply international technology that is suitable within the Lao context. to increase national productivity and competitiveness; (4) develop and expand basic infrastructure in the media industries and IT to become a hub for providing social media services and products.

**Normative planning strategies of the policy:** (1) Increase investment in research and development from 1% to 2% of public investment by 2020; (2) promote private investment in research and development to cover at least 30% of public investment by 2020; (3) train 11 researchers per 10 000 of the population by 2020.

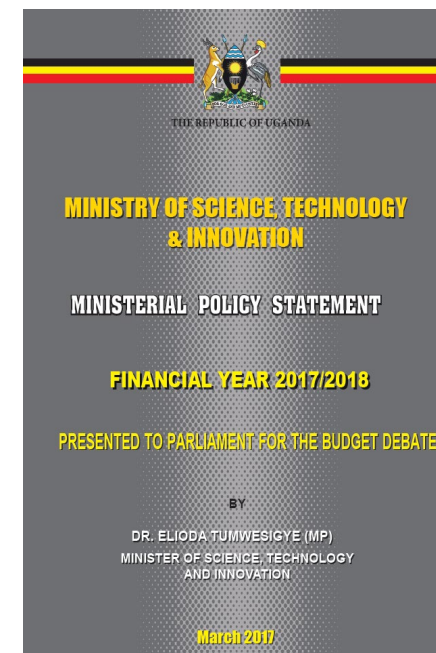
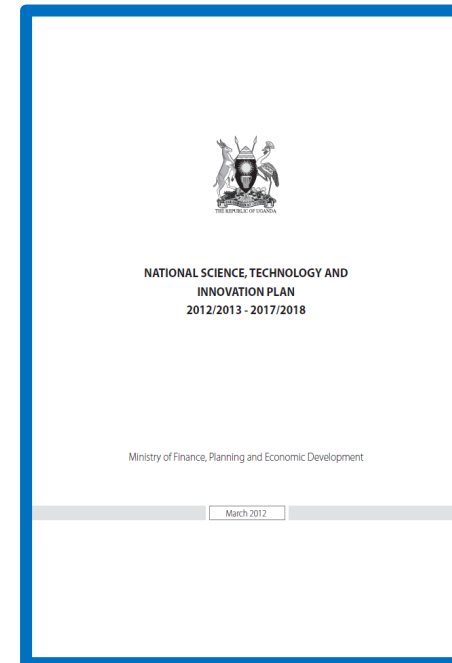
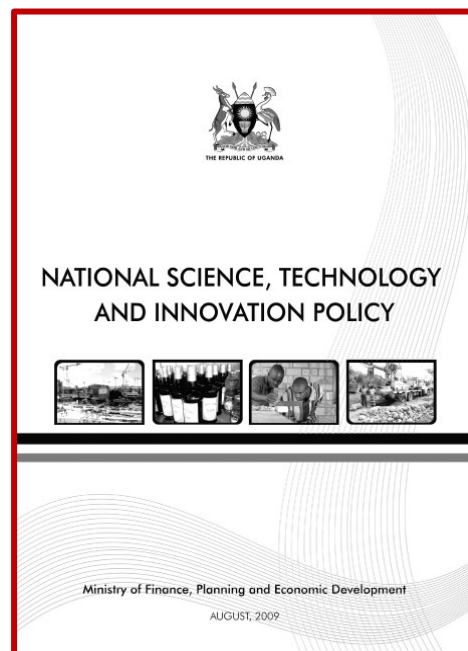
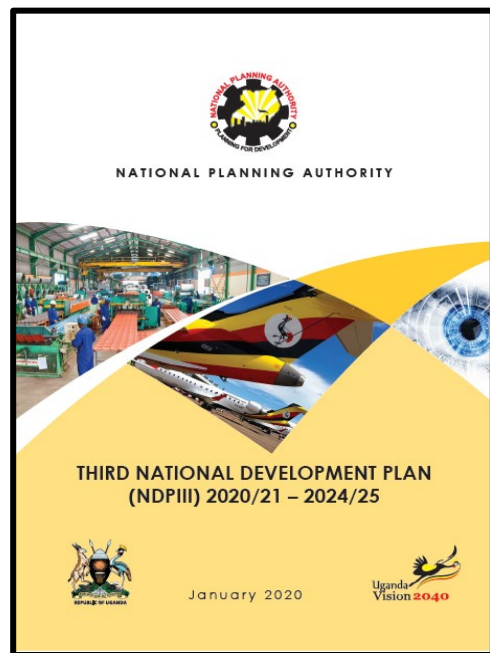
**Policies related to the supply of STI:** (1) Improve and upgrade research institutes under the Ministry of Science and Technology so at least one institute is comparable with international standards by 2020; (2) support the development of researchers at universities across the country by allocating a budget to promote research work on at least 50 projects by 2020; (3) create a science magazine. promote research work and publish findings in science magazines and international magazines. in at least 250 articles by 2020.





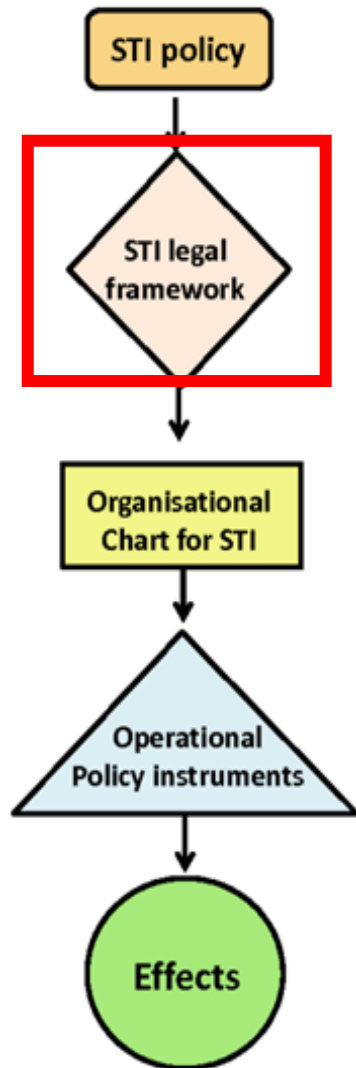


# Content analysis of the “explicit” STI policy(ies) in Uganda





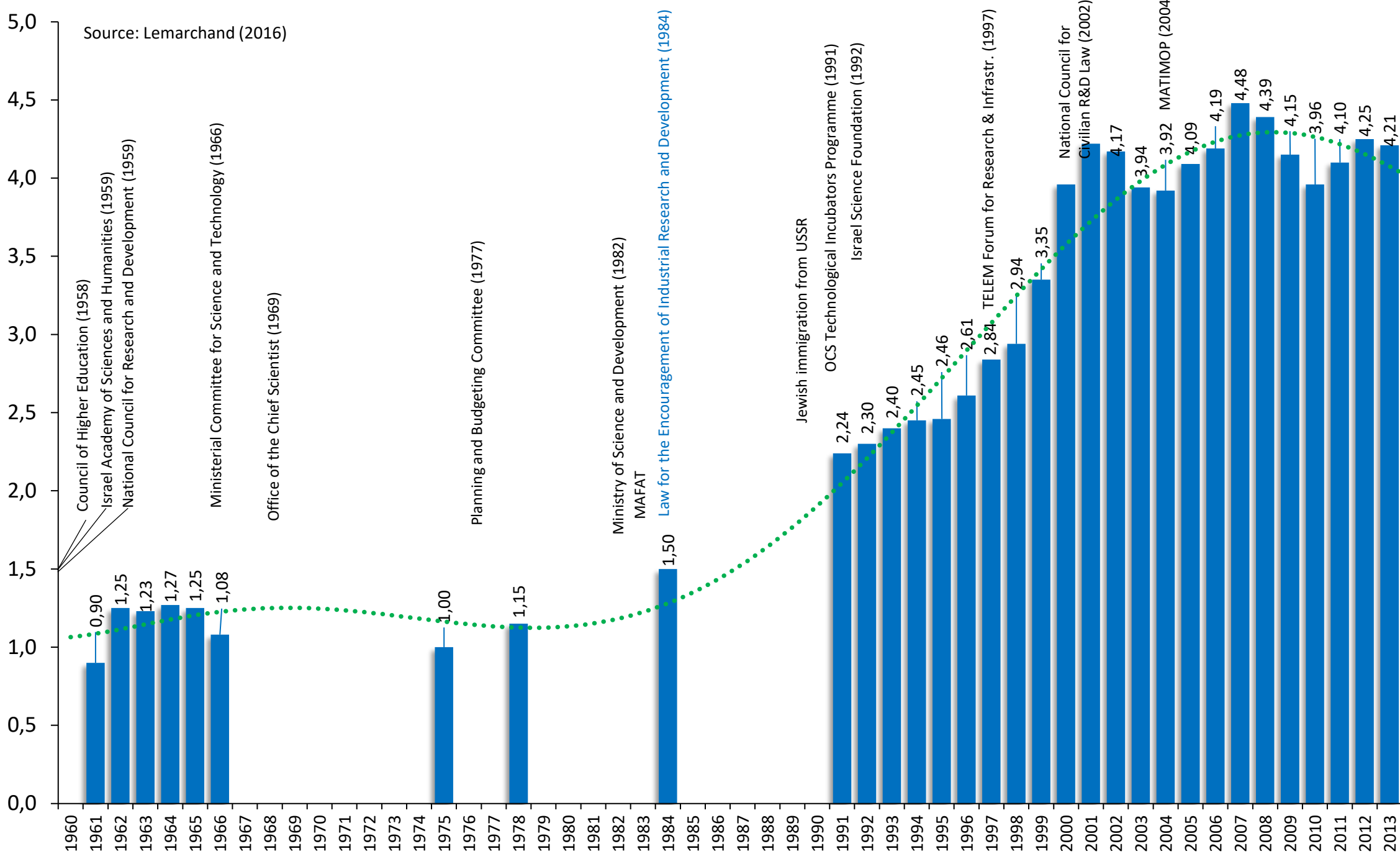
# SETI Legal Framework



The so-called “legal framework” might also be considered as a set of “legal instruments” or “legal devices.” This embodies the policy. or parts of it. in the form of a law. decree or regulation. Formal agreements. contracts and international SETI cooperation treaties may also be included in this category. A legal device goes one step beyond a “policy” by stipulating obligations. rights. rewards and penalties connected with its being obeyed. **This is probably the most relevant database to “monitor most of the items of the 2017 Recommendation”**



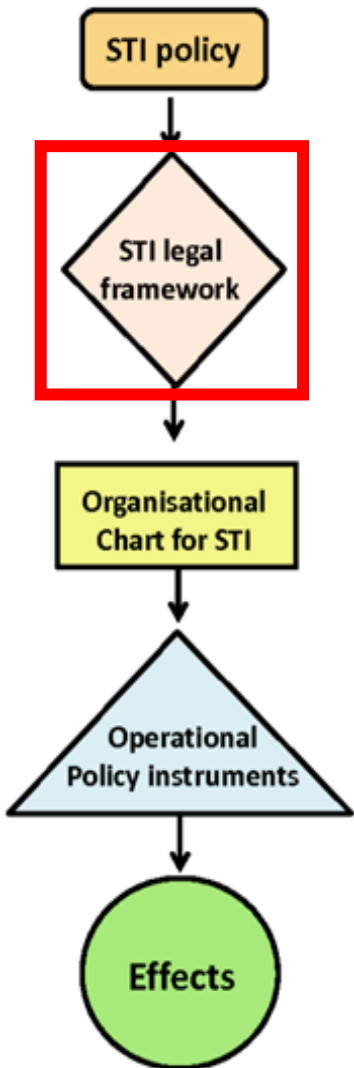
# GERD in Israel (1960-2013). percentage GDP





# Examples of legal instruments

- Legal instruments for the creation of national research labs. universities. national research councils. Ministries of S&T. R&D Funds. Innovation Funds
- For the regulation of the labour conditions and status of scientific researchers
- Regulations on Open Science
- Tax Incentives for Innovation
- Regulations of the Higher Education System
- Regulations on Bioethics and Ethics of Science and Technology
- Regulations to ensuring responsible research and innovation
- Regulations on STI personnel
- Regulations on research labs safety/security
- Regulations on nuclear. chemical. and other dangerous substances
- Regulations on STI gender equality
- Regulations on inclusive and green technologies
- Regulations on Indigenous Knowledge Systems
- Regulations on Intellectual Property Rights







# Examples of legal instruments in Uganda

STI policy

STI legal framework

Organisational Chart for STI

Operational Policy instruments

Effects

## UNIVERSITIES AND OTHER TERTIARY INSTITUTIONS ACT, 2001

(AS AMENDED IN, 2003 AND AS AMENDED IN, 2006)

ENACTED BY THE PARLIAMENT OF THE REPUBLIC OF UGANDA AS ACT 7

*An Act to provide for the establishment of the National Council for Higher Education, its functions and administration and to streamline the establishment, administration and standards of Universities and other institutions of Higher Education in Uganda and to provide for other related matters.*

DATE OF ASSENT: 28<sup>th</sup> March, 2001.

Date of Commencement: 6<sup>th</sup> April, 2001.

### DIVISION ONE—PRELIMINARY PROVISION.

#### PART I - SHORT TITLE, INTERPRETATION AND OBJECTIVES OF THE ACT

##### Short Title

1. This Act may be cited as the Universities and Other Tertiary Institutions Act, 2001.

##### Interpretation

2. In this Act, unless the context otherwise requires:— "accreditation" means public acceptance and confirmation evidenced by the grant of a charter that a University meets the requirements and standards of academic excellence set by the National Council;

"Affiliated Tertiary Institution or College" means a Tertiary Institution or College established as such under section 71 or 111 of this Act;

"Certificate of Classification" means a Certificate issued by the National Council at the registration of a Tertiary Institution;

"Chancellor" means a person appointed as such by the President under section 30 of this Act;

"Charter" means a charter granted by the President under this Act as evidence that the University meets the requirements and standards of academic excellence set by the National Council;

"Classification" means the grouping of tertiary institutions according to the type of Higher Education or Programmes being provided or offered by the institution.

"Constituent College" means a college established or declared as such under section 29 or 111 of this Act.

"Course of Study" means the structure for a certificate, diploma, degree or other academic qualification and the subjects of study in the course.

"Governing Council" means the Governing Council of any Other Degree Awarding Institution established under section 82A of the Governing Council of a Tertiary Institution established under section 77 of this Act.

"Letter of Interim Authority" means the authorization referred to in section 95A and issued by the National Council to the promoter of a private University to enable the promoter mobilize resources for the further development of the proposed university.

"Minister" means the Minister responsible for education;

"National Council" means the National Council for Higher Education established under section 4;

"Other Degree Institution" means any public or private institution or centre of higher education other than a University, one of the objects of which is the provision of post secondary education offering courses of study leading to the award of certificates, diplomas and degrees and conducting research and publishing the results of the research.

"Operate a University or Tertiary Institution" includes conducting courses or programmes of study by any method of delivery, whether residential or distance, electronic or print, satellite or similar form of transmission of information.

"Person" includes any individual, firm, company, association, or body of persons, whether incorporated or not;

## ACTS SUPPLEMENT No. 5

8th June, 2006.

### ACTS SUPPLEMENT

*to The Uganda Gazette No. 36 Volume XCIV dated 8th June, 2006.  
Printed by UPPC, Entebbe, by Order of the Government.*

Act 5

*Uganda Industrial Research Institute Act*

2006

THE UGANDA INDUSTRIAL RESEARCH INSTITUTE ACT, 2003.

### ARRANGEMENT OF SECTIONS

#### Section.

#### PART I—PRELIMINARY.

1. Short title.
2. Interpretation.

#### PART II—ESTABLISHMENT, OBJECTS AND FUNCTIONS OF THE INSTITUTE.

3. Establishment of the Institute.
4. Objectives of the Institute.
5. Functions of the Institute.

#### PART III—THE BOARD OF THE INSTITUTE.

6. Board of the Institute.
7. Functions, powers and duties of the Board.
8. Meetings of the Board.
9. Tenure of office of members of the Board.
10. Committees of the Board.

#### PART IV—MANAGEMENT AND STAFF OF THE INSTITUTE.

11. Executive Director and Deputy Executive Director.
12. Functions of the Executive Director and Deputy Executive Director.
13. Other Staff.

## ACTS SUPPLEMENT No. 5

10th June, 2011.

### ACTS SUPPLEMENT

*to The Uganda Gazette No. 40 Volume CIV dated 10th June, 2011.  
Printed by UPPC, Entebbe, by Order of the Government.*

Act 10

*Uganda National Health Research Organisation Act*

2011

THE UGANDA NATIONAL HEALTH RESEARCH ORGANISATION ACT, 2011.

### ARRANGEMENT OF SECTIONS

#### Section.

#### PART I—PRELIMINARY

1. Commencement
2. Interpretation

#### PART II—ESTABLISHMENT, COMPOSITION, OBJECTS, FUNCTIONS AND POWERS OF THE ORGANISATION

3. Establishment of the Organisation
4. Composition of the Organisation
5. Object of the Organisation
6. Functions of the Organisation
7. Powers of the Organisation

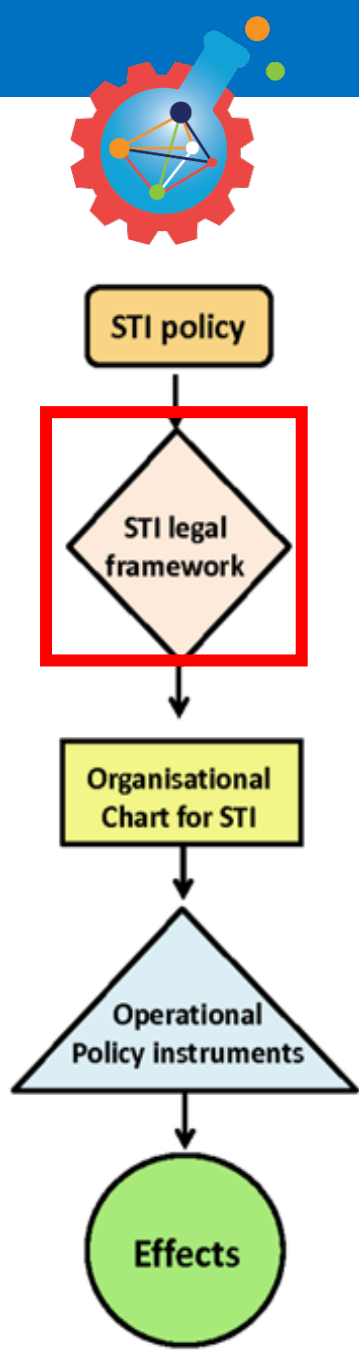
#### PART III—THE BOARD OF THE ORGANISATION

8. The Board
9. Tenure of office of members of the Board
10. Disqualification for membership on the Board
11. Meetings of the Board
12. Function of the Board
13. Committees of the Board
14. Remuneration of the members of the Board

#### PART IV—SECRETARIAT OF THE ORGANISATION

15. Secretariat of the Organisation
16. Function of the secretariat
17. Other staff
18. Employment of experts and consultants

# Examples of Uganda's Intellectual Property Laws and Treaties



## Laws:

- The Industrial Property Act, 2014
- The Geographical Indications Act, 2013
- The Trademarks Act, 2010
- The Trade Secrets Protection Act, 2009
- The Copyright and Neighbouring Rights Act, 2006

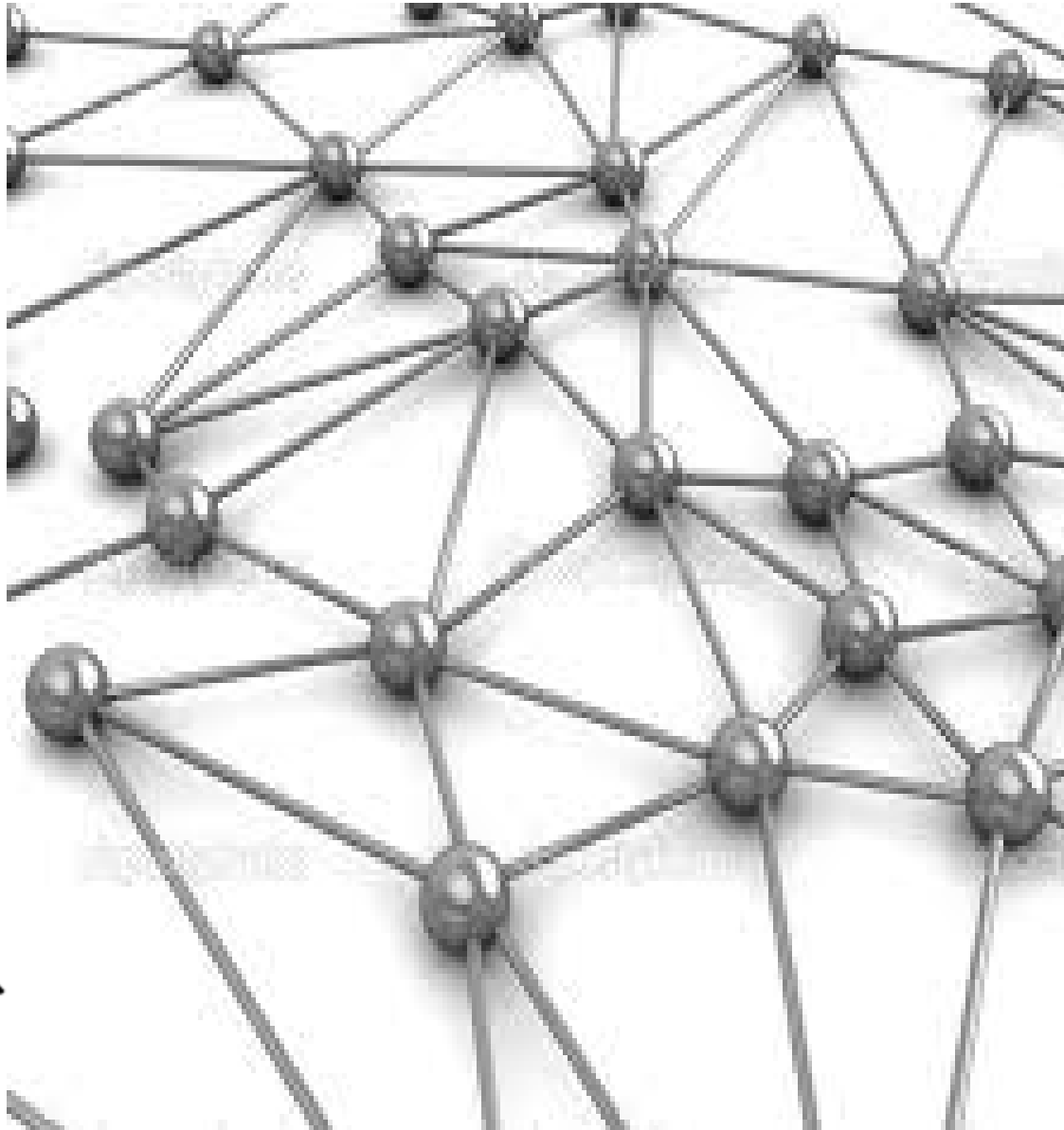
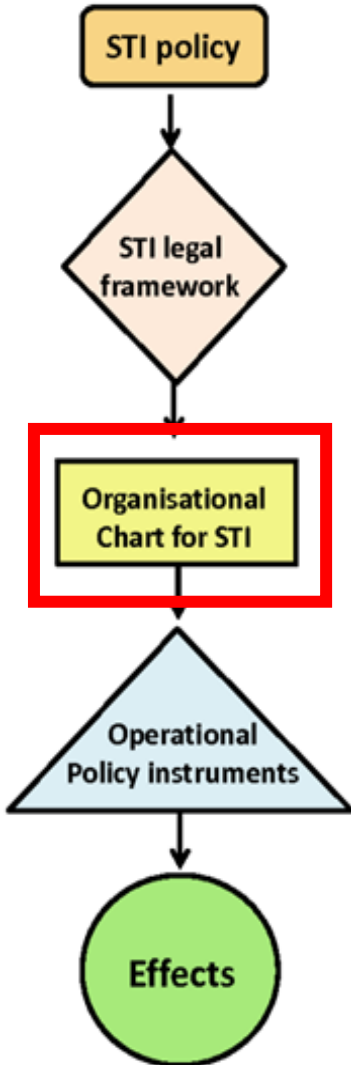
## Implementing Rules and Regulations:

- The Industrial Property (Fees) Regulations, 2017
- The Industrial Property Regulations, 2017
- The Trademarks Regulations, 2012
- The Copyright and Neighbouring Rights Regulations, 2010
- The Judicature (Commercial Court Division) (Mediation) Rules, 2007
- The National Environment (Access to Genetic Resources and Benefit Sharing) Regulations, 2005
- Uganda Registration Services Bureau Act (Commencement) Instrument, 2004
- The Patents Regulations, 1993

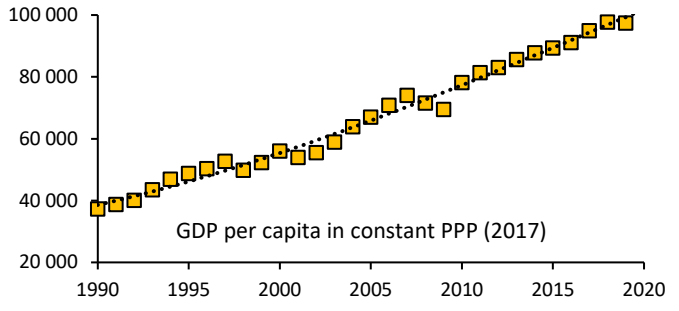
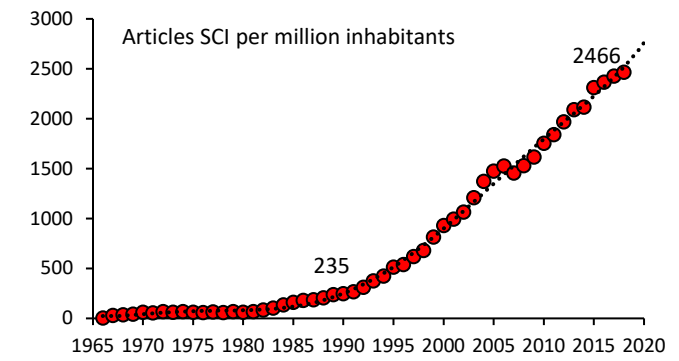
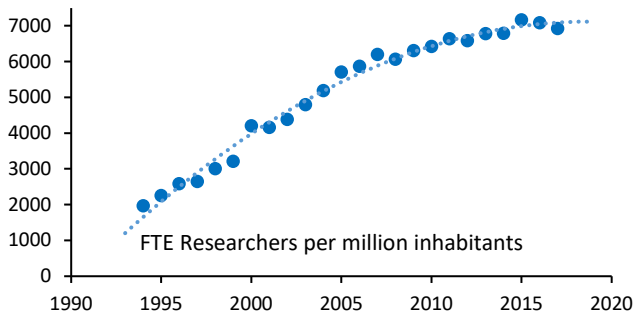
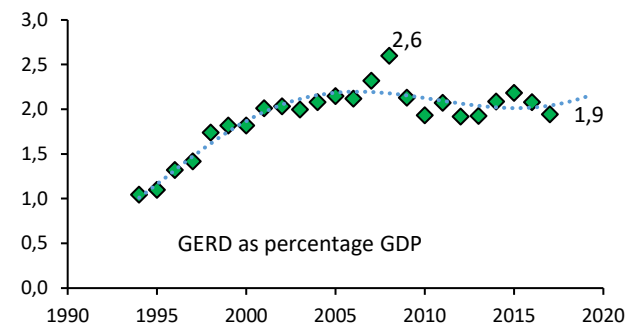
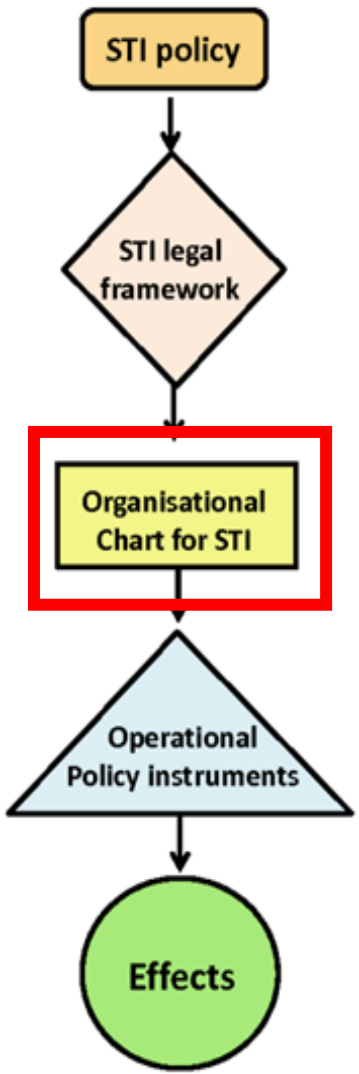
## Treaties:

- Beijing Treaty on Audiovisual Performances, signed on 8 October 2012
- Marrakesh VIP Treaty, in force since July 23, 2018
- Nairobi Treaty, in force since 21 October 1983
- Paris Convention, in force since 14 June 1965
- Patent Cooperation Treaty, in force since 9 February 1995
- Patent Law Treaty, signed on 2 June 2000
- World Intellectual Property Organization (WIPO) Convention, in force since 18 October 1973





How robust is the structure of the STI ecosystem to effectively promote research and innovation for sustainable development in the long-run?

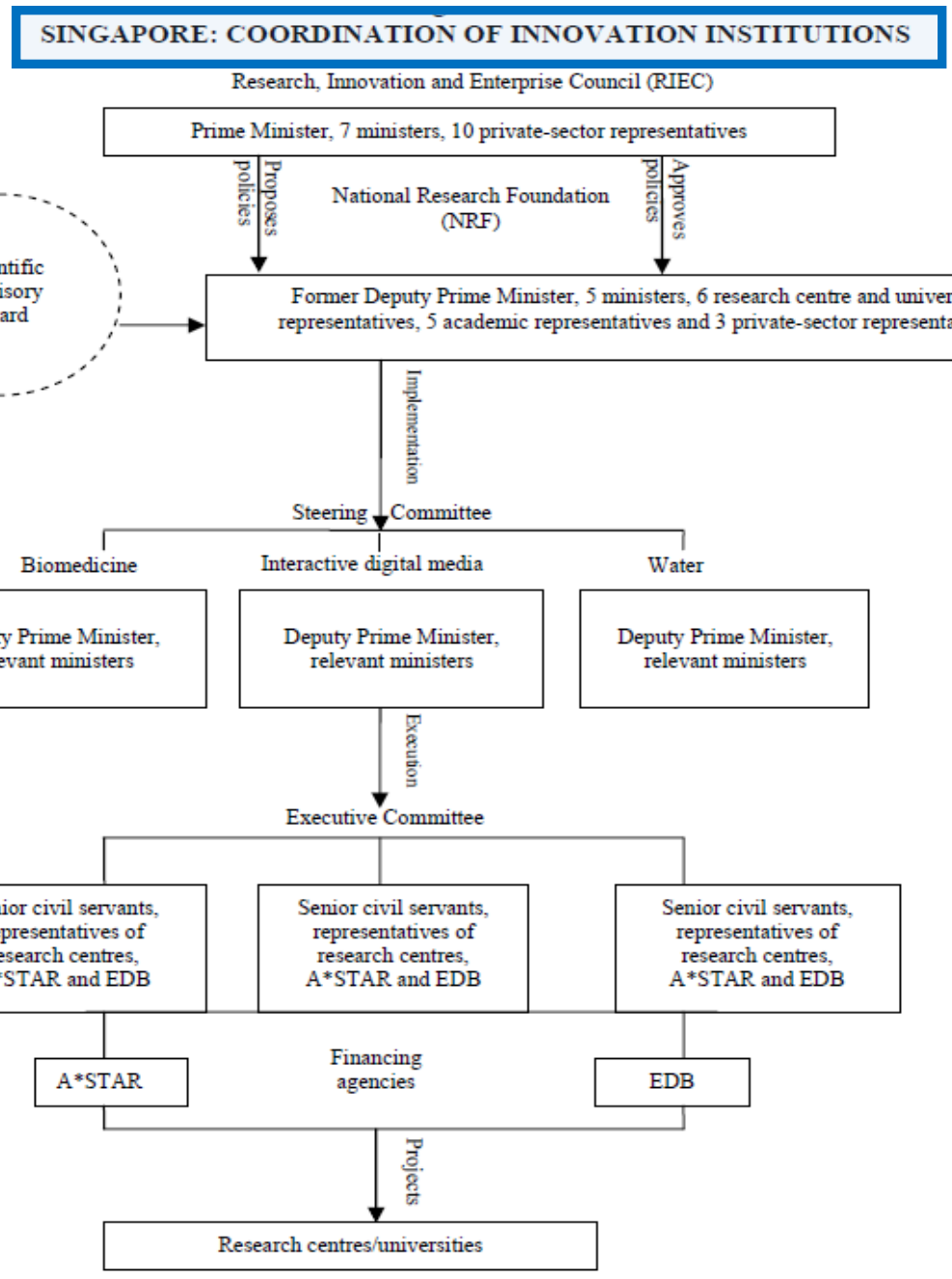


source: Lemarchand (2020)

source: Lemarchand (2020)

source: Lemarchand (2020)

source: Lemarchand (2020)

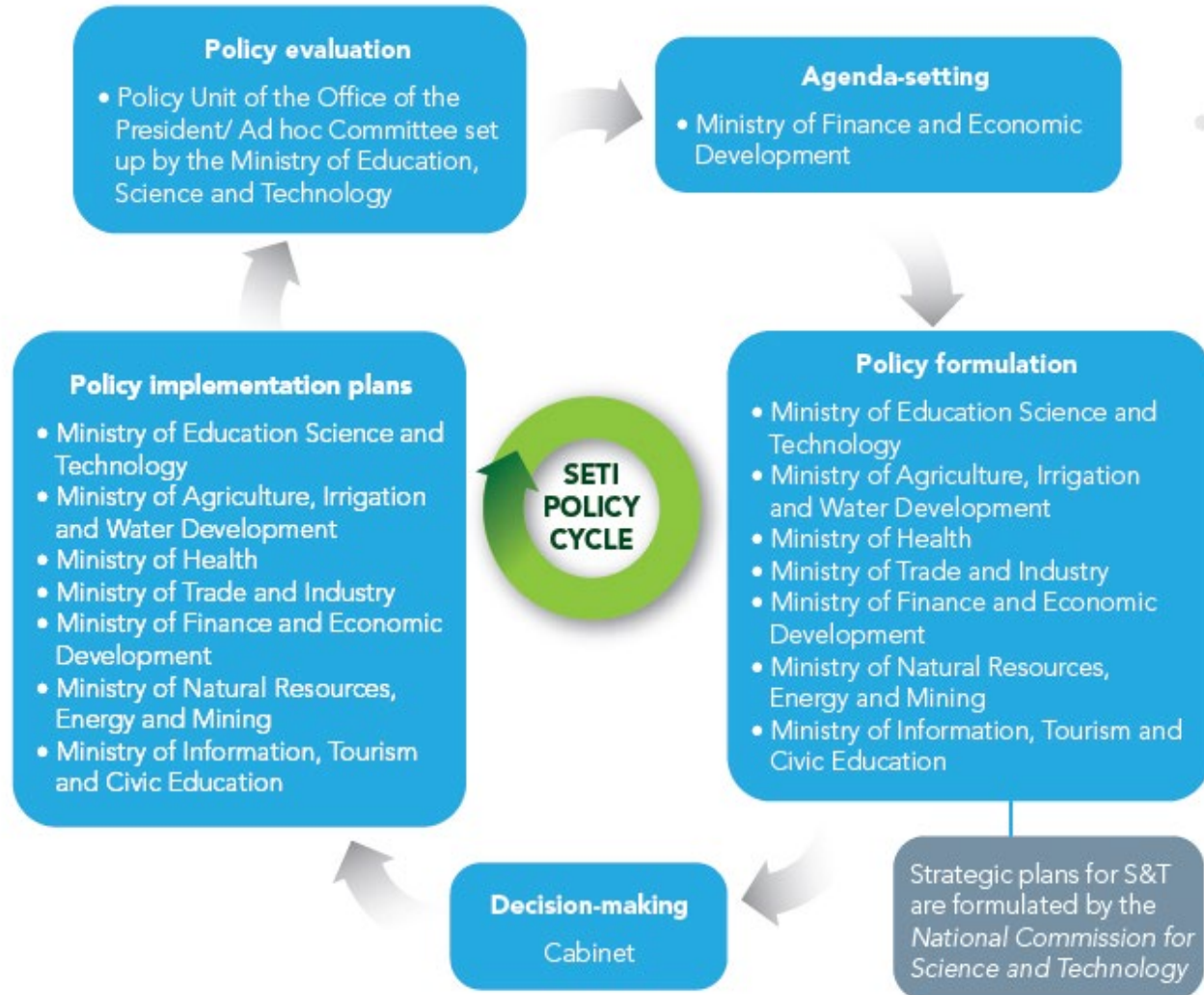


source: ECLAC (2008)





# Mapping the stages of the SETI policy cycle



**(1) Agenda-Setting:** refers to the process by which problems on SETI and its relation to society and the economy come to the attention of the government.

**(2) Policy Formulation:** refers to the process by which SETI policy options are formulated by the government.

**(3) Decision-Making:** refers to the process by which governments adopt a particular SETI course of action or non-action.

**(4) Policy Implementation:** refers to the process by which governments put SETI policies into effect.

**(5) Policy Evaluation:** refers to the process by which the impact of SETI policies. are monitored by both State and societal actors. the result of which may be a re-conceptualization of policy problems and solutions.

Figure 31: SETI policy cycle in Malawi, 2014. Source: UNESCO

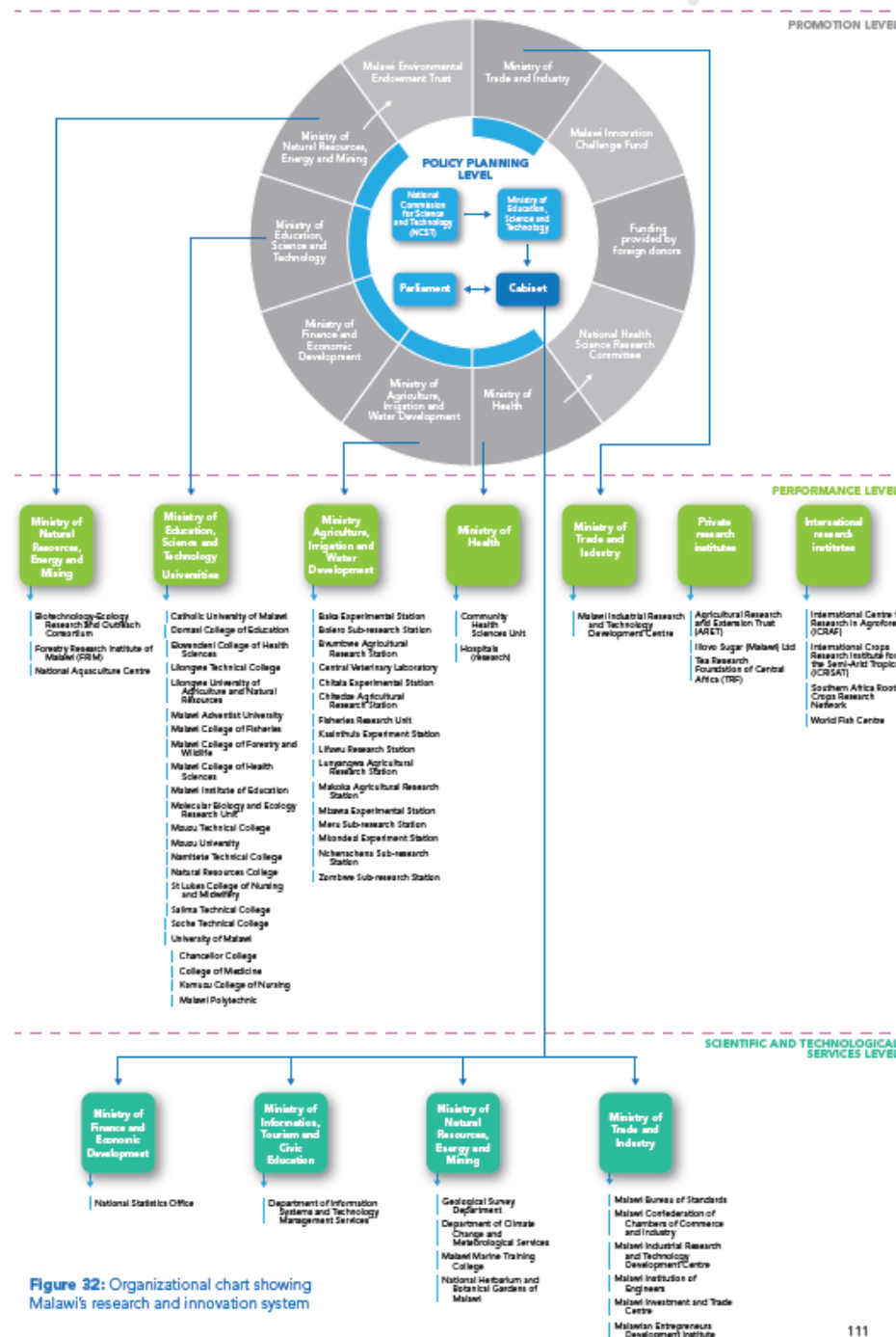
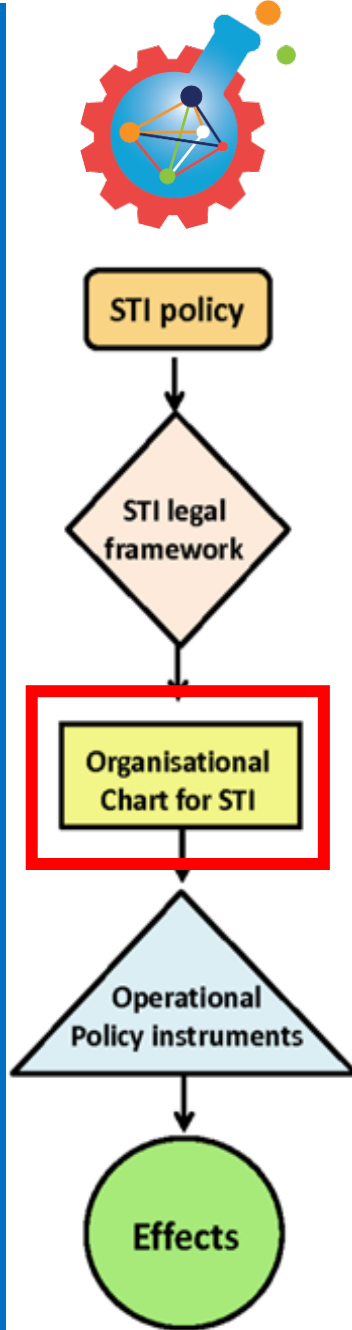


Figure 32: Organizational chart showing Malawi's research and innovation system

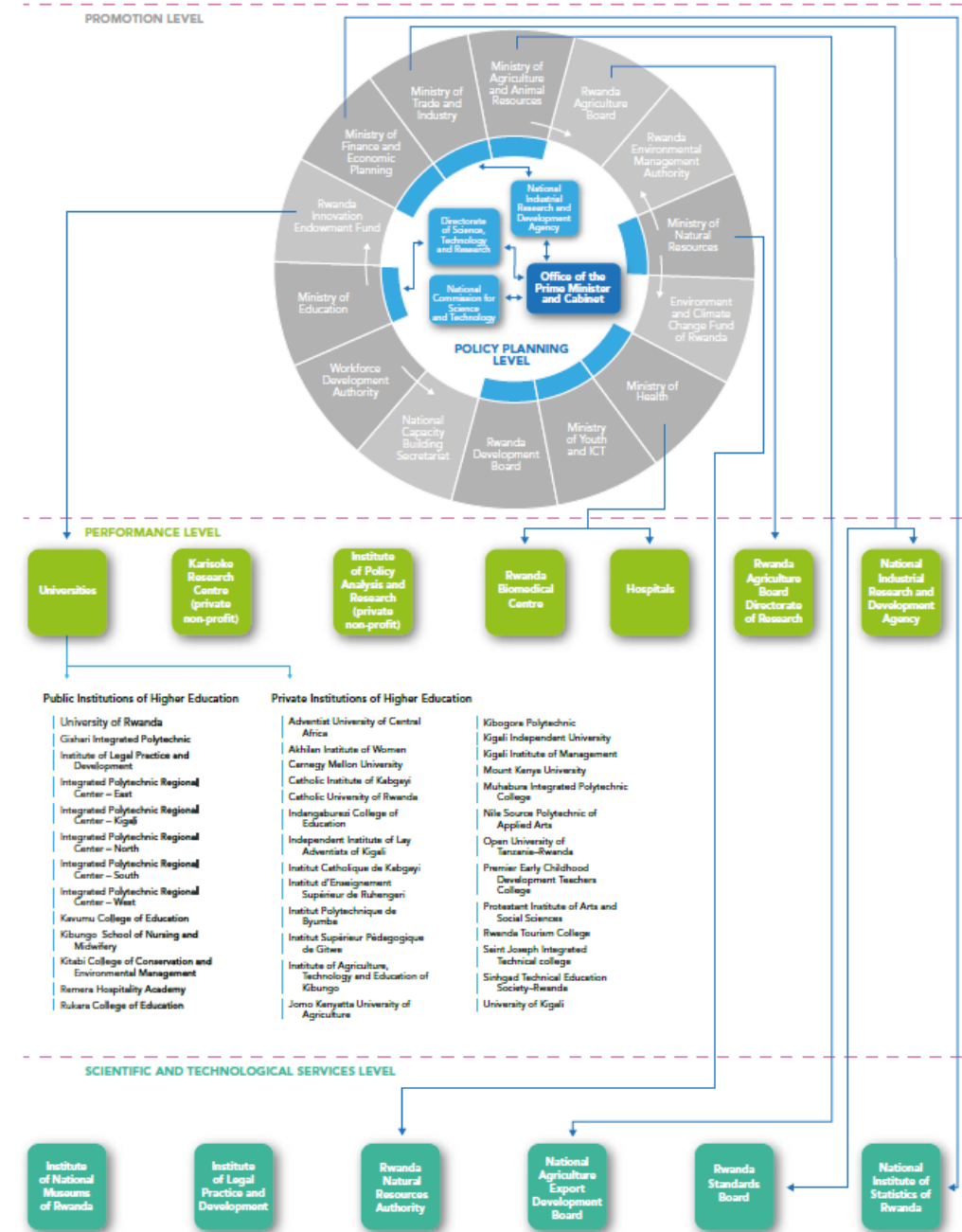
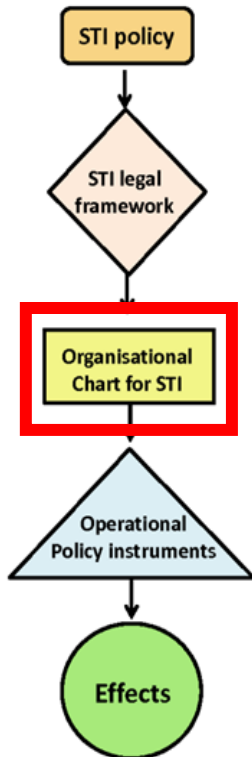


Figure 42: Organizational chart showing Rwanda's research and innovation system (c. 2015). Source: UNESCO

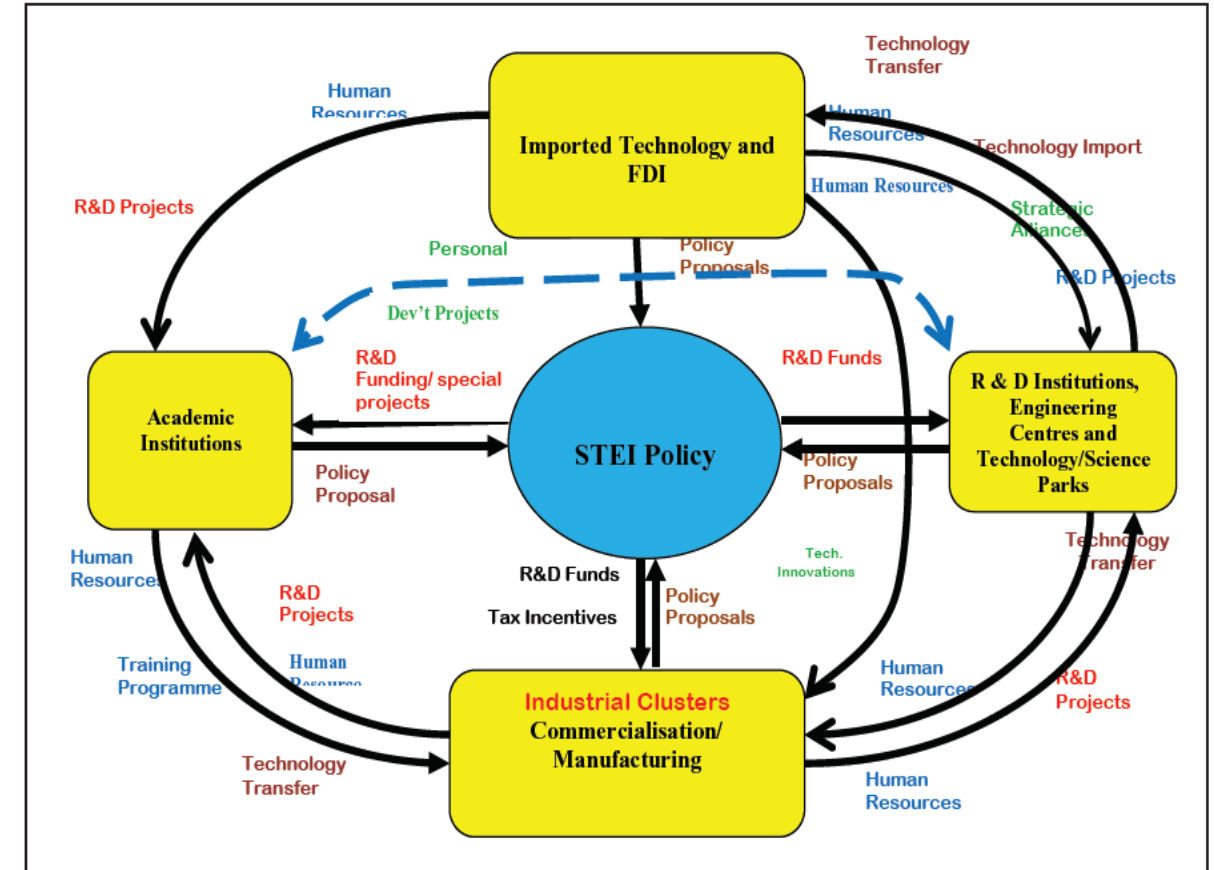
# Uganda SETI Ecosystem



PROMOTION LEVEL

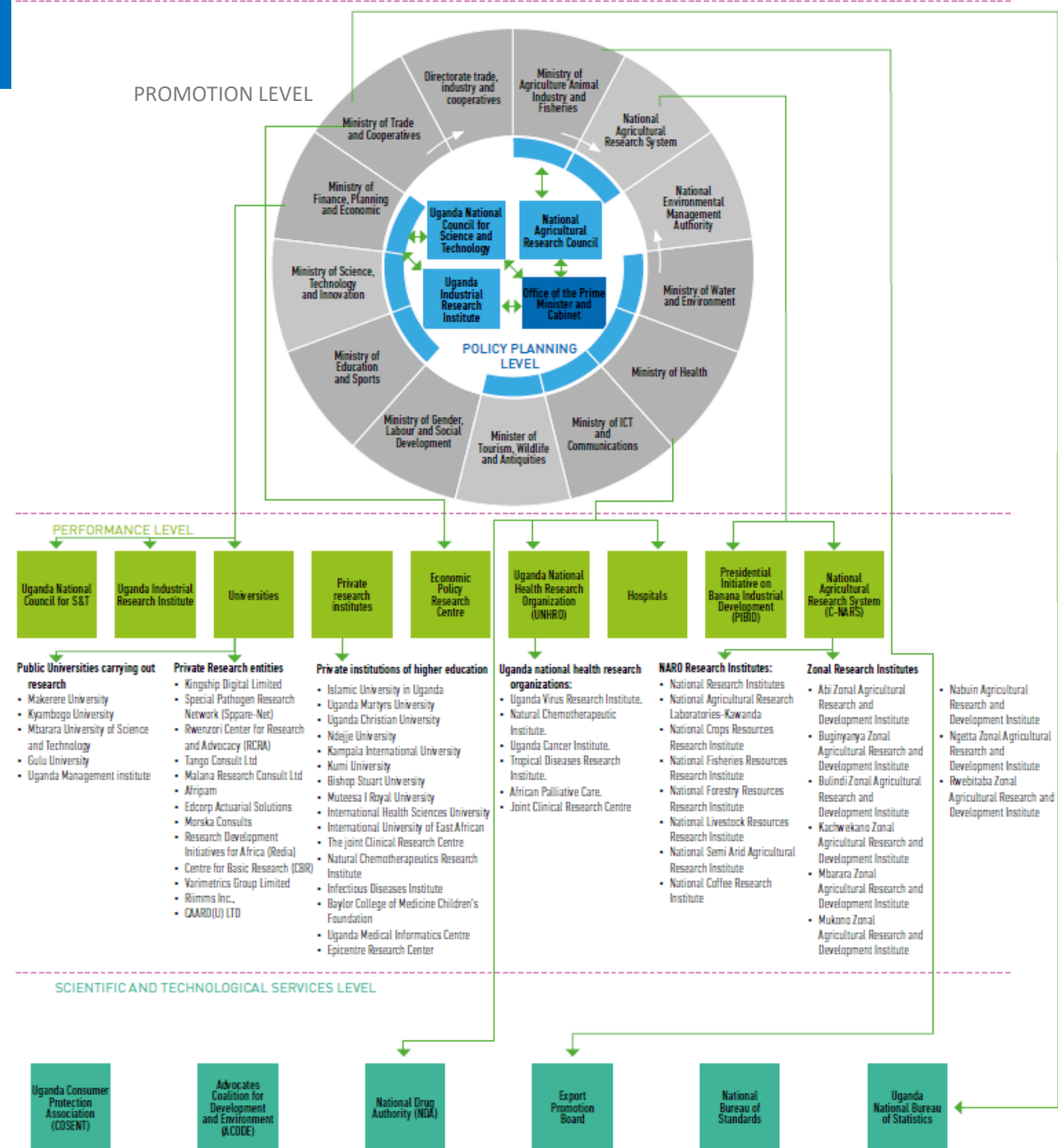
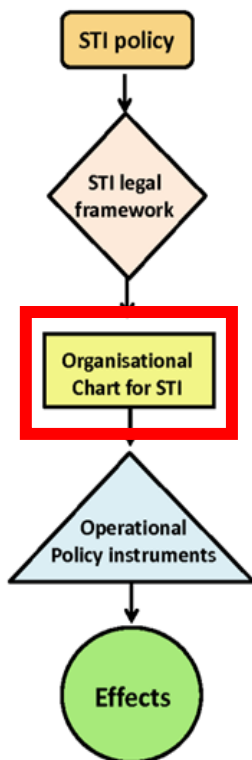


Figure 4.5: Proposed Framework for STEI System

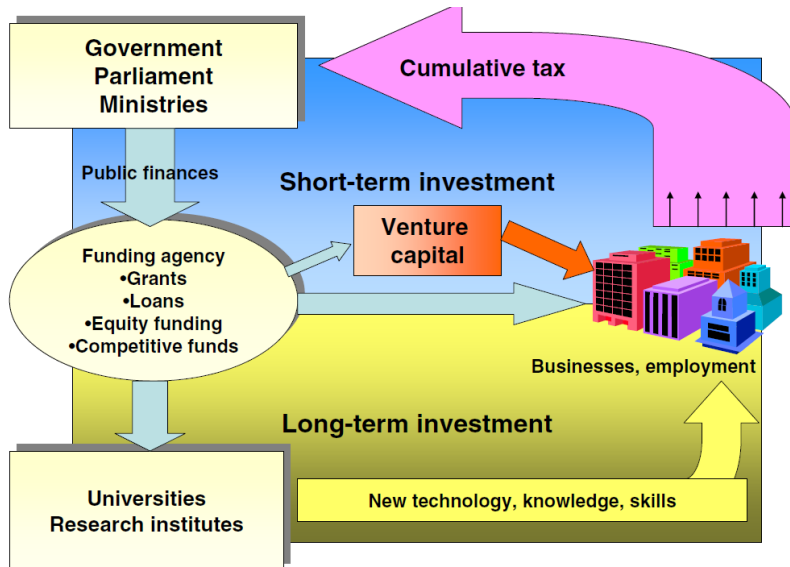
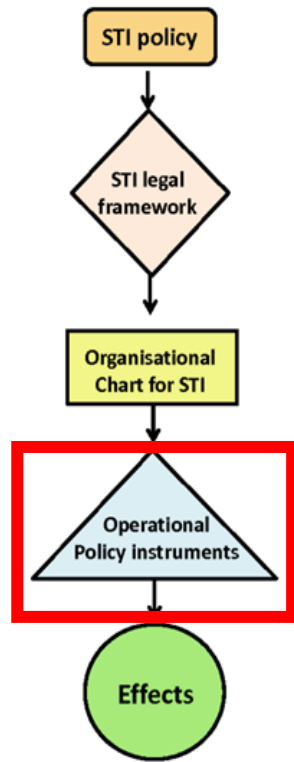




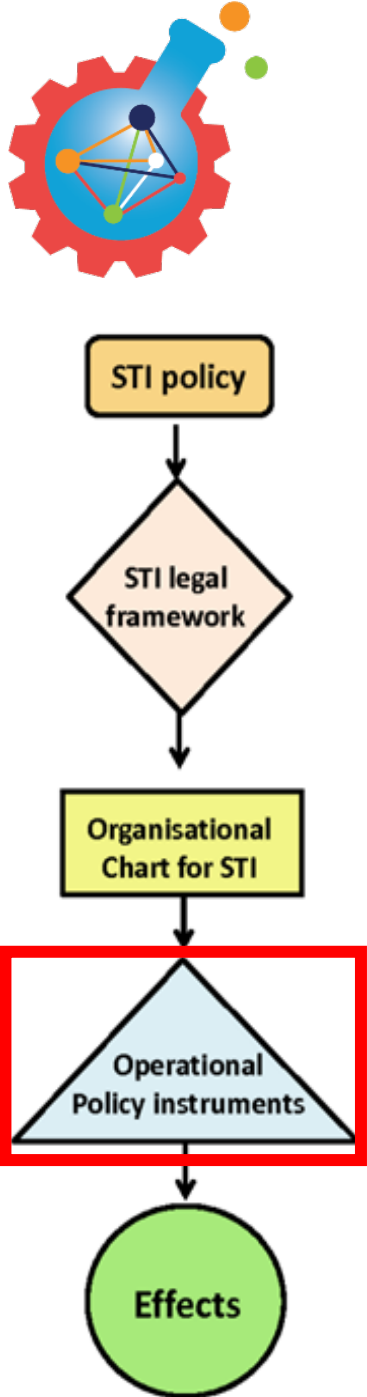
# Uganda SETI Ecosystem





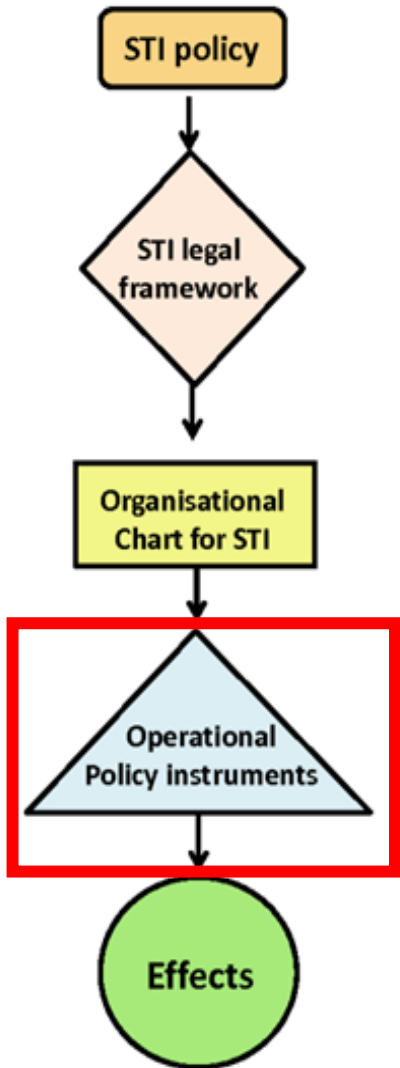


- Policy instruments are the means employed by those who exercise power and authority to influence the decisions made by other agents.
- They induce and motivate individuals. groups. firms. organizations and institutions to behave in accordance with the guidelines and criteria established by the policies.
- They are the connecting link between the purpose expressed in a policy statement and its implementation in practice.

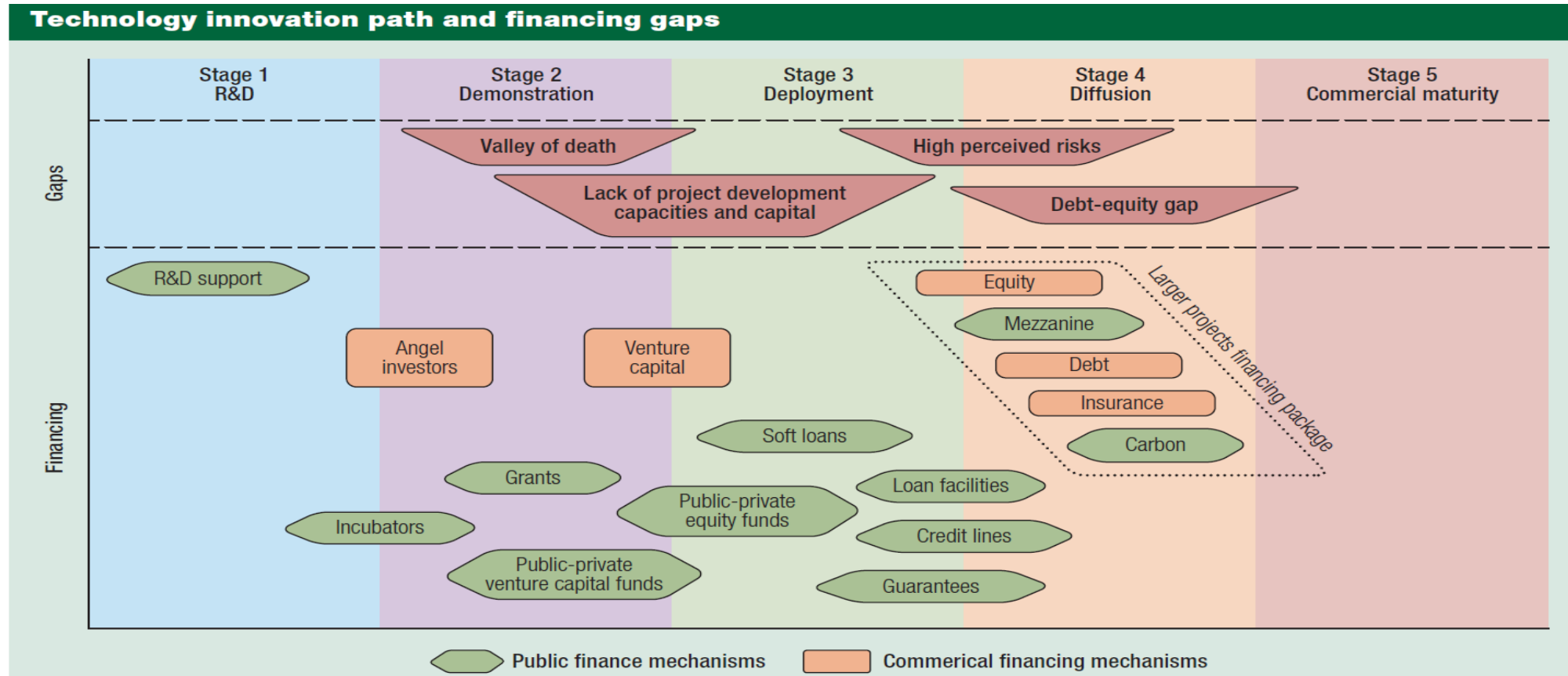


Industrial deepening	Technological capability	Skill demand	Education and training	In-firm training	Links to other players
Low-level, simple assembly and processing mainly for domestic market	Ability to master simple assembly technologies, copy simple designs and repair machines, but no capacity to adapt processes	Literacy, numeracy and simple technical and managerial training	Formal primary education	No formal in-firm training. Informal learning through repetition and trial and error	None likely
Intermediate level, including export-oriented activities in light industry	Capability to undertake minor adaptations to processes and products, but little or no design and development capabilities	Low base of engineering and scientific skills. Small and medium-size enterprises have low skill levels	Good secondary and technical schooling and management and financial training	Some in-house training mainly by export-oriented firms	To buyers and suppliers, but very unlikely to technology institutions
Advanced and deep industrial structure mainly in technology-intensive industries	Ability to monitor, import, adapt and operate state-of-the-art advanced technologies	Highly specialized manufacturing skills with a focus on technical subjects such as engineering and mathematics	Excellent tertiary technical education and specialized industrial training by institutions of technical and vocational education and training. High numbers of university-trained managers	Large investments in formal and informal in-firm training	Strong to suppliers, buyers, consultants, universities and technology institutions

# GO→SPIN – Operational SETI policy instruments

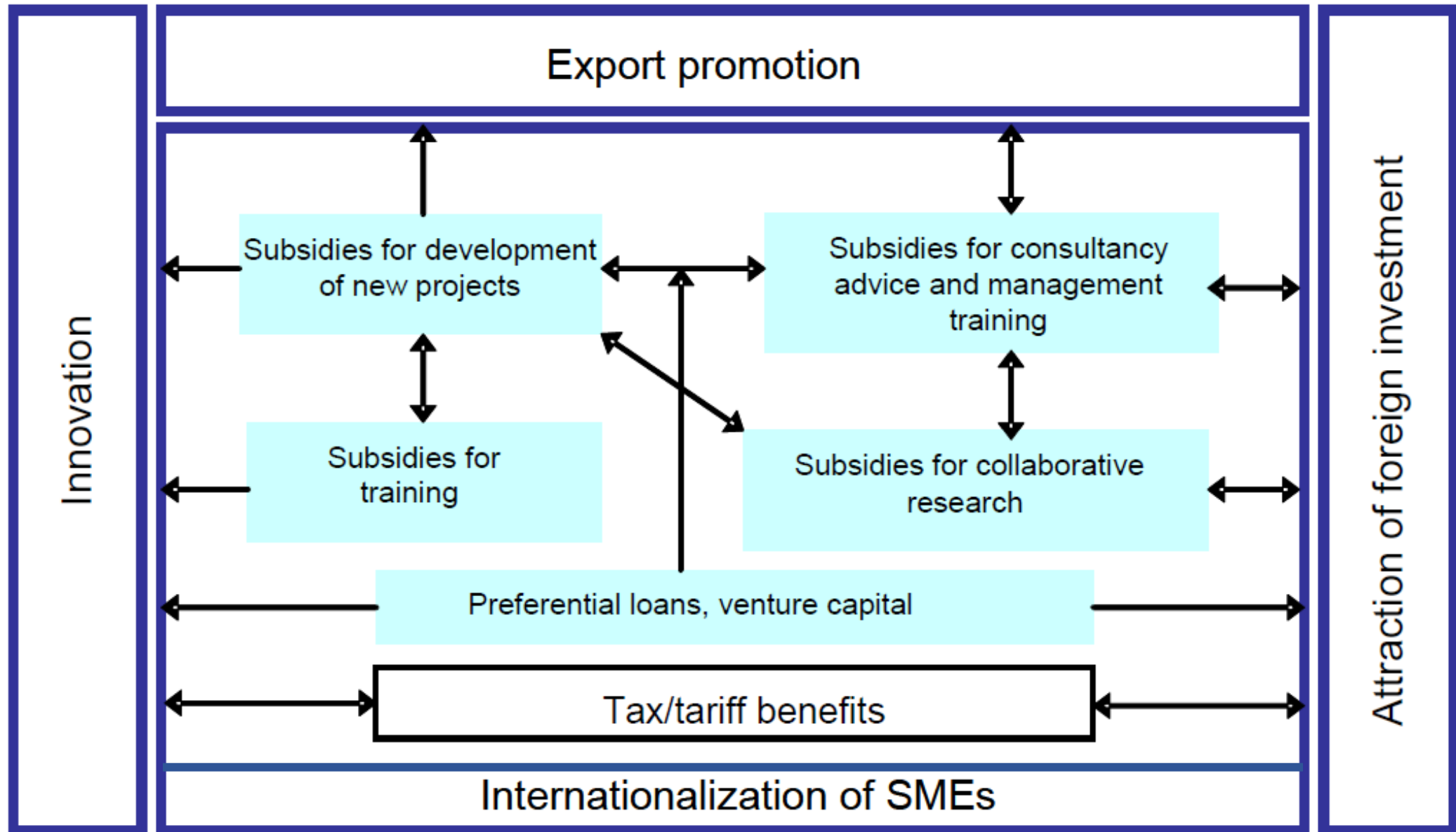
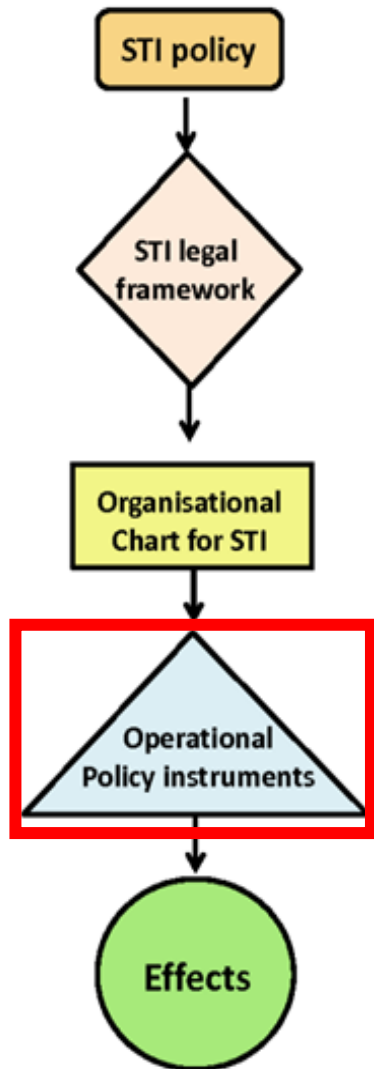


Policy instruments are the means employed by those who exercise power and authority to influence the decisions made by other agents.

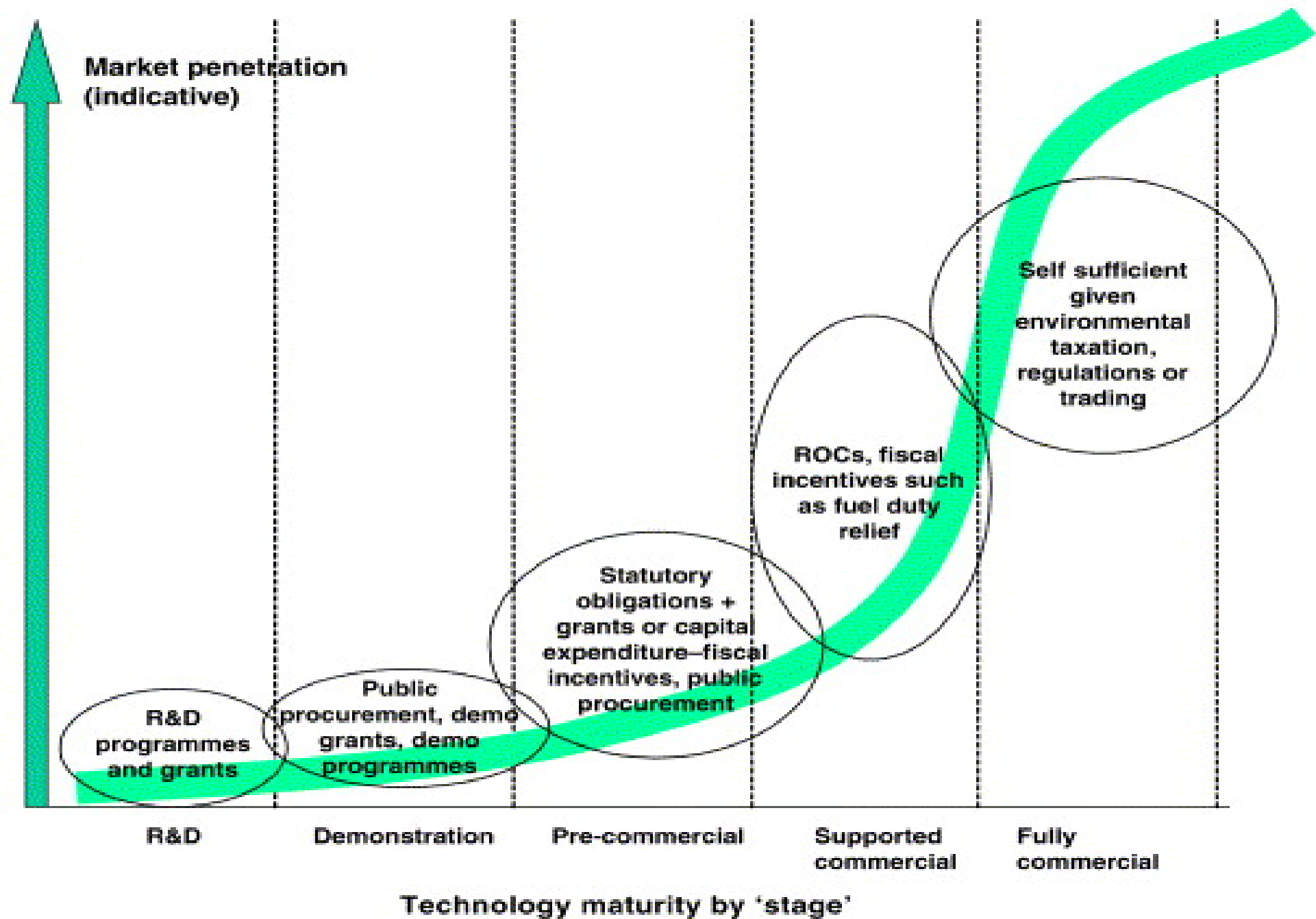
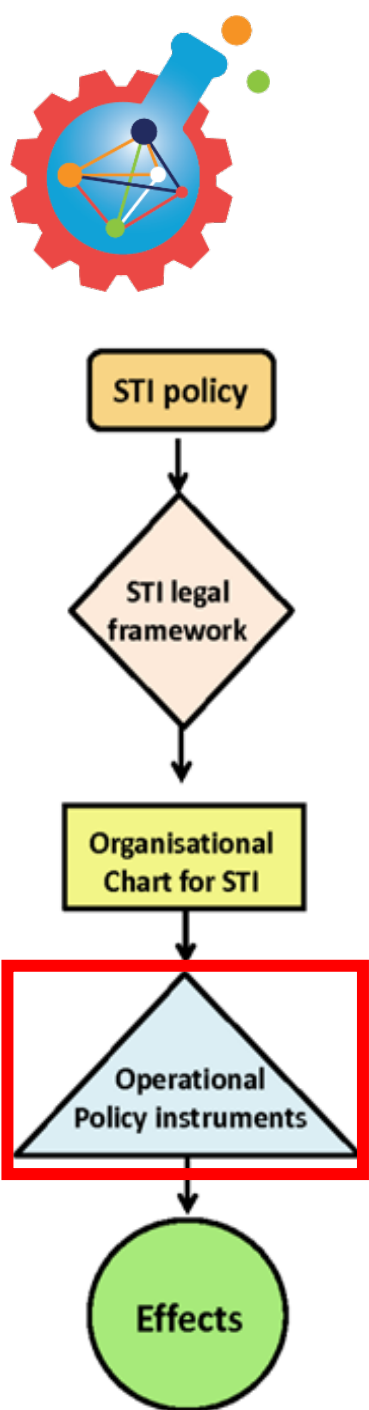




# Functional links between support programmes: SMEs







# Examples: The Argentine Technological Fund (FONTAR)



STI policy

STI legal framework

Organisational Chart for STI

Operational Policy Instruments

Effects

FONTAR programmes	Instrument used	Objectives	Beneficiaries	Form of allocation and financial contribution
Technological development (new products, services or production processes)	Non-repayable contributions	Increased competitiveness through innovation in products, services and processes	Micro-, small and medium-sized enterprises and brooder enterprises certified by IBEROEKA	By public competition. Up to 50% of project cost
	Loans for technological development projects	Finance for middle-income technology production projects	Micro-, small and medium-sized enterprises with research and development departments or teams, collaboration groups, and UVTs (Unidades de Vinculación Tecnológica - Technical Linkage Units) underwritten by the enterprise	Compulsorily repayable loans. Up to 80% of the total cost, allocated on an open window basis, with a maximum of 200,000 pesos for three years
Technological modernization (improvement of products and processes, training)	Fiscal credit programme	Assistance for the execution of research and development activities	Physical or juridical persons who own enterprises producing goods and services	Subsidies through Fiscal Credit Certificates obtained through public competition. Up to 50% of the total cost of the project
	Loans for modernization projects	Technological adaptation and improvement of products and processes with a low level of technical and economic risk	Enterprises with research and development department or groups. Collaboration groups, and UVTs underwritten by the enterprise	Special compulsorily repayable loans allocated on an open window basis. Up to 80% of the total cost of the project, with a maximum of 300,000 pesos for three years
	Loans to enterprises	To finance projects for the development of new production processes, products and modifications thereto	Enterprises, without any restrictions as regards size or sector. No finance provided for projects with a rate of return of less than 12%	Compulsorily repayable loans allocated on an open window basis. Up to 80% of the total cost of the project, with a maximum of 1 million pesos
Promotion of the technological services market (research centres and business research centres)	Subsidies for projects to develop business plans	Finance for business development projects based on research and development	Micro-, small and medium-sized enterprises whose projects are executed by UVTs	Subsidies allocated on an open window basis. Up to 50% of the total cost of the project, with a maximum of 20,000 pesos, for up to one year
	Loans to institutions	To promote the establishment and strengthening of structures for the provision of technological services to research and development enterprises and institutions	Public or private institutions providing services to the private production sector. The projects may be presented on an individual or associated basis	Obligatorily repayable subsidies allocated on an open window basis, up to a maximum of 2 million pesos
Training and technical assistance	Subsidies for training and retraining projects	Subsidies to support activities for the training and retraining of human resources in new technologies	Micro-, small and medium-sized enterprises whose projects are executed by UVTs	Subsidies allocated on an open window basis. Up to a maximum of 50% of the total cost of the project, or 20,000 pesos for up to six months
	Subsidies for project formulation	Support for the formulation of research and development projects, technology transfer or technical assistance	Micro-, small and medium-sized enterprises whose projects are executed by UVTs	Subsidies allocated on an open window basis. Up to a maximum of 50% of the total cost of the project, or 20,000 pesos for up to six months

# Examples of Sectoral Funds in Brazil



STI policy




































STI legal framework

Organisational Chart for STI



Effects

Sectoral funds	Objectives	Origin of financial resources	Activities
CT-PETRO (1999) Sectoral fund for the oil and natural gas sector. Instrument whereby established: Law No. 9487 of 1997	Sectoral development through promotion of research and development and human resources training	25% of value of royalties exceeding 5% of production of oil and natural gas	Collaboration in the definition of policies and the implementation of specific programmes. In 2001, 144 projects worth 7 million reales were approved by the CNPq. Expenditure between January and November 2003: 16,431,002.70 reales
CT-ENERG Sectoral fund for the energy sector. Instrument whereby established: Law No. 9991 of 2000	Sectoral development through promotion of research and development	Between 0.75% and 1% of the net income of enterprises with concessions for the generation, transmission and distribution of electricity	In 2001 the CNPq approved 132 research and development projects involving the investment of 8 million reales by the fund. In 2001 an association agreement was signed between the National Electric Power Agency and the CNPq to promote cooperation between research centres and enterprises. Total expenditure between January and November 2003: 8,397,738
CT-HYDRO Sectoral fund for water resources. Instrument whereby established: Law No. 9993 of 2000	Reduction of disparities between regions through investments in science and technology activities of importance for the sector. Strengthening of water resource sustainability	Made up of 4% of the financial compensation of electricity generation enterprises	Financing of scientific and technological development projects and programmes designed to improve water quality and use. In 2002, 28.6 million reales were invested, of which at least 4 million were for the training of specialized personnel. Expenditure between January and November 2003: 3,735,635.85 reales
CT-INFO Sectoral fund for information technology. Instrument whereby established: Law No. 10176 of 2001	Promotion of the competitiveness of the sector through research and development programmes and projects	At least 5% of the gross annual turnover in the domestic IP goods and services market of enterprises producing goods and services relating to information technology which receive fiscal incentives under the law to promote the IP industry	It is estimated that over 50 million reales are spent each year on the promotion of research and development activities in this sector. Expenditure between January and November 2003 was 9,971,983.70 reales

Country	a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k.	l.	m.	n.	Tot
 Algeria	1	-	-	-	1	3	-	-	-	-	-	-	-	-	5
 Argentina	43	16	53	1	2	62	2	-	-	3	2	17	9	4	136
 Azerbaijan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
 Benin	-	-	1	-	1	-	-	-	-	-	-	-	-	-	2
 Bolivia	2	-	-	-	-	3	-	-	1	-	-	-	1	-	5
 Botswana	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
 Brazil	35	5	58	2	4	33	14	-	-	2	1	8	9	2	108
 Burkina Faso	4	-	3	-	2	3	-	-	1	-	-	2	-	-	5
 Cameroon	1	-	1	-	3	3	-	-	-	1	-	-	-	-	4
 Chile	25	3	23	4	1	57	4	-	-	2	-	14	-	2	90
 Colombia	16	1	15	-	4	17	1	-	-	1	-	3	1	2	38
 Costa Rica	7	-	13	2	5	10	1	-	-	3	-	5	3	1	34
 Cote D'Ivoire	2	-	1	-	1	3	-	-	-	-	-	-	-	-	3
 Cuba	1	-	-	-	-	1	-	-	-	-	-	-	-	-	1
 Dominican Republic	2	-	2	-	-	3	-	-	-	-	-	1	-	-	7
 Ecuador	9	-	11	1	-	3	-	-	1	1	-	-	-	2	22
 Egypt	8	3	7	-	1	5	-	-	-	2	-	2	-	-	12
 El Salvador	4	-	6	-	-	7	2	-	-	1	-	-	-	-	13
 Ethiopia	2	-	-	-	1	1	-	-	-	-	-	-	-	-	2
 Gabon	-	-	2	-	-	-	1	-	-	-	-	-	-	-	2
 Gambia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
 Ghana	1	-	1	-	-	1	-	-	-	1	-	-	-	-	3
 Guatemala	6	2	6	-	1	2	-	-	-	1	1	-	1	-	11
 Honduras	2	-	1	-	-	3	-	-	-	1	1	-	-	-	7
 India	21	8	20	6	4	28	3	4	1	9	2	6	-	-	49
 Indonesia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
 Iran, Islamic Republic of	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
 Iraq	1	-	2	-	-	-	-	-	-	2	-	-	-	-	3
 Israel	31	19	32	5	8	27	6	8	7	-	25	17	-	-	53
 Jamaica	1	-	-	-	-	3	-	-	-	-	-	1	-	-	3
 Jordan	5	-	3	-	-	7	-	-	-	2	-	1	-	-	9
 Kazakhstan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
 Kenya	6	-	12	1	4	5	-	-	1	7	1	3	-	-	12
 Kuwait	21	-	11	-	12	16	-	-	-	4	2	4	-	-	36
 Kyrgyzstan	1	-	-	-	-	1	-	-	-	-	-	-	-	-	1

- Strengthening the production of new endogenous scientific knowledge
- Strengthening the infrastructure of research laboratories in the public and private sectors
- Human resources for research. innovation. and strategic planning. Capacity building. education and training of specialized human capital for (1) the production of new scientific knowledge. (2) development of new technologies. (3) promotion of innovation within the productive and services systems and (4) management of the knowledge society.
- Strengthening gender equality for research and innovation
- Strengthening the social appropriation of scientific knowledge and new technologies
- Development of strategic technological areas and new niche products and services with high- added value. Promotion and development of innovation in the production of goods and services. Promotion of start-ups in areas of high technology
- Strengthening programmes on science education at all levels (from primary school to postgraduate)
- Promotion of the development of green technologies and social-inclusion technologies
- Promotion of indigenous knowledge systems
- Research and innovation eco-system: strengthening co-ordination. networking and integration processes which promote synergies among the different actors of the national scientific technological and productive innovation system (i.e. government. university. and productive sectors)
- Strengthening the quality of technology foresight studies to: Assess the potential of high-value markets. develop business plans for high-tech companies. construct and analyse long-term scenarios and provide consulting services and strategic intelligence
- Strengthening regional and international co-operation. networking. and promotion of STI activities
- Awards in science. technology. and innovation



# Examples of SETI operational policy instruments in Uganda



- **Proposed ‘Uganda Innovation Fund’:** (several instruments)
- **Presidential Initiatives for Science and Technology:** e.g. research grants; innovation fund at the Faculty of Technology of Makerere University, etc.
- **Innovation and Incubation Instruments:** UIRI; National ICT Initiatives Support Programme, ICT Innovation Parks, FTBIC, NSSF, CURAD, Food and Business Incubation Center (MU), Innovation Village; Mukono-Wakiso Innovation Platform, Outbox (innovation hub); MUST’s Innovation Centers.
- **Matching grants:** E-Voucher Framer Scheme Project (MAAIF)
- **Financing youth entrepreneurs in rural areas:** Youth Livelihoods Programme
- **Regional Mechanisms:** *The Regional Universities Forum for Capacity Building in Agriculture (RUFORUM)* has a vast set of “policy instruments” in operation for Ugandan partners: (1) Graduate Research Grants; (2) Community Action Research Programme; (3) Field Attachment Programme Awards; (4) RUFORUM Entrepreneurship Challenge Programme; (5) Doctoral Grants; (6) Direct Commissioning System; (7) Nurturing Grants; (8) Technical Skills Development Programme; (9) Short skills enhancement courses; (10) African Universities Leadership and Management Training Programme; (11) Governance and administration of grants.

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# Time for questions



... Thank you very much  
For your kind attention!



**Last run**

