



JAPAN PATENT OFFICE



REGIONAL UNIVERSITIES
FORUM FOR CAPACITY
BUILDING IN AGRICULTURE



KENYA INDUSTRIAL PROPERTY
INSTITUTE



AFRICAN REGIONAL
INTELLECTUAL PROPERTY
ORGANIZATION



WORLD
INTELLECTUAL PROPERTY
ORGANIZATION

DEANS AND PRINCIPALS FORUM

Management of IP by Universities and R&D Institutions

(Promoting Public, Private Partnership)

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Components

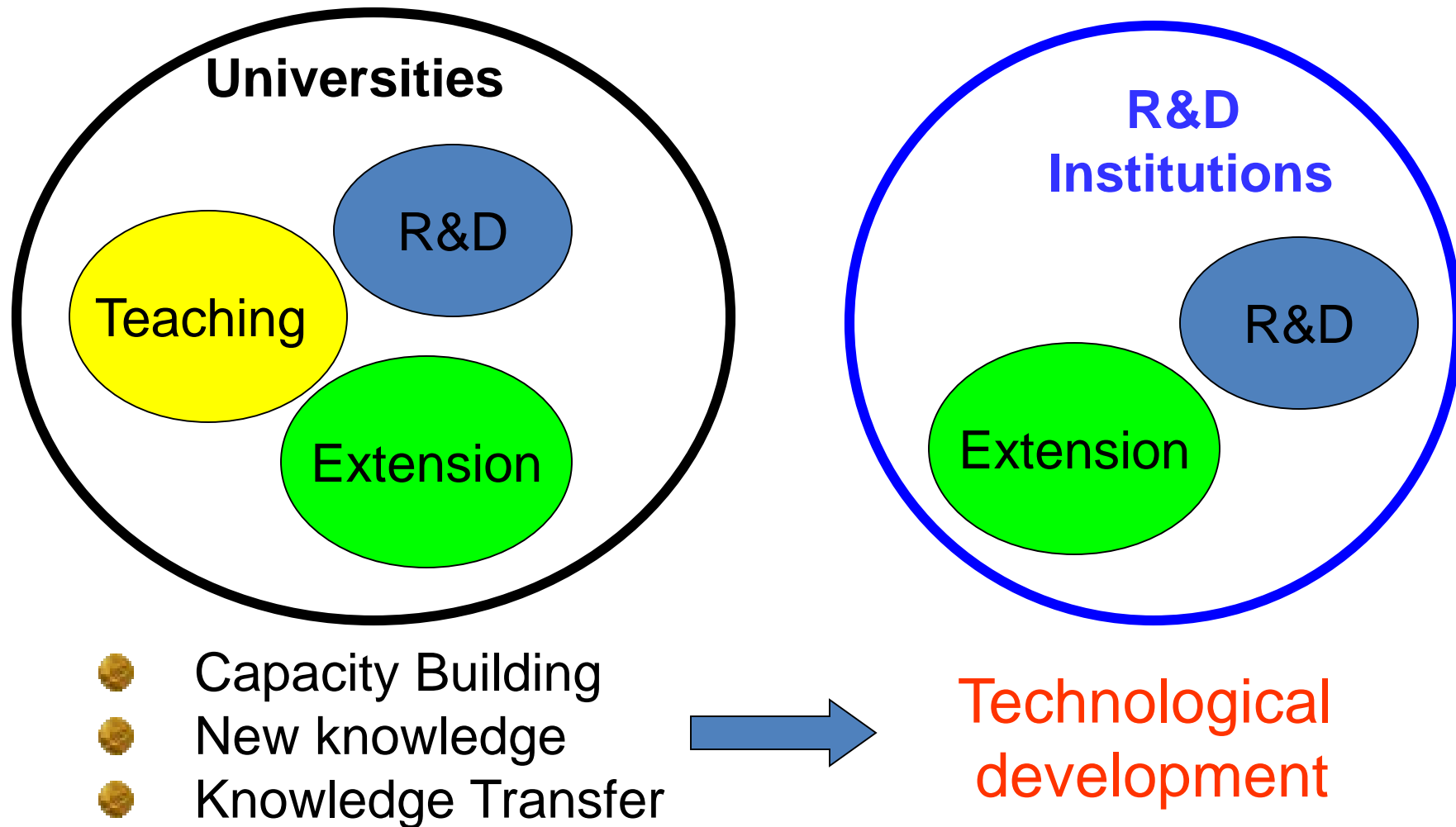
- The ideal situation to work towards
- Making R&D work for development
- Basic requirements for effective University-Industry Partnership in Knowledge generation, protection and transfer
- Some Examples from Kenyan R&D
- Conclusions

1. What we would like to see

- Government recognizes the importance of R&D for economic development and funding it
- Researchers are addressing local problems
- Knowledge generated through R&D activities is transferred to the Industry
- Strong and self sustaining linkages with industries
- Industries are funding R&D activities
- R&D institutions producing new industries
- IP and Innovation are integrated in the research culture of the university and research organization

Making Research Work for Development

2.1. Mandates of RTOs



2.2. RESEARCH PRODUCTS

The direct product of research is knowledge. It can be in the form of

- New Technology
- New Product
- New Process
- Improvement in existing product, process or technology

Research Products and Intellectual Property

2.3. Utilization Of Research Products

- Publication a traditional R&D output
- R&D is only useful if its products can lead to
 1. Job creation
 2. Poverty Reduction
 3. Industrialization
 4. Hunger

Making Research Work for Development

2.4. New evaluation criteria of R&D

● Outputs

1. No of Publications,
2. Patent applications, IP Assets generated, IP Assets Licensed

● Outcomes

1. Income from Technology Licensing
2. No of Companies created directly based on the product of R&D
3. Increase in sales, tax revenues, profitability
4. Jobs created

● Impacts

1. Contribution to the GDP

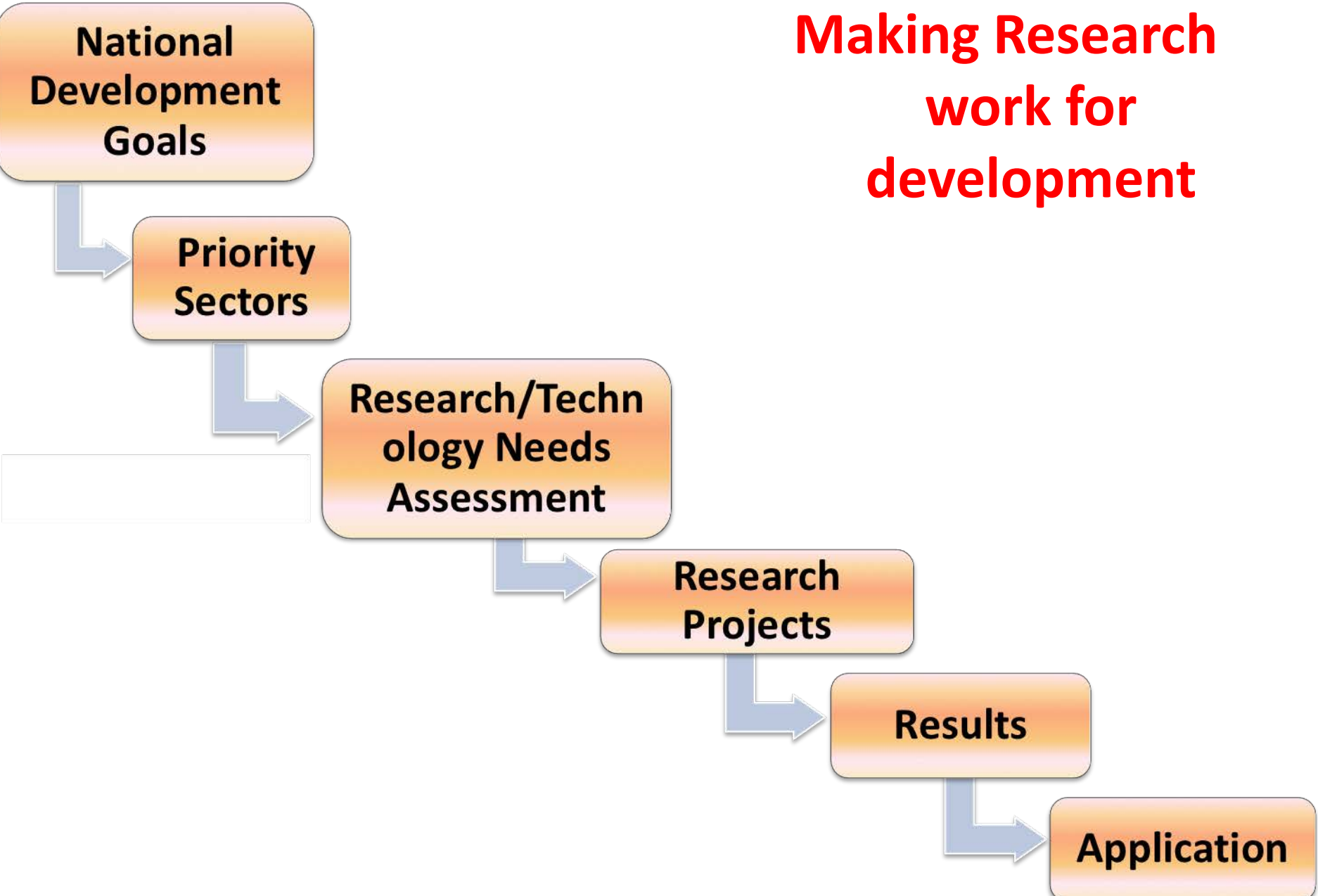
Making Research Work for Development

2.5. Interest in Estimating the contribution of R&D to the GDP is increasing

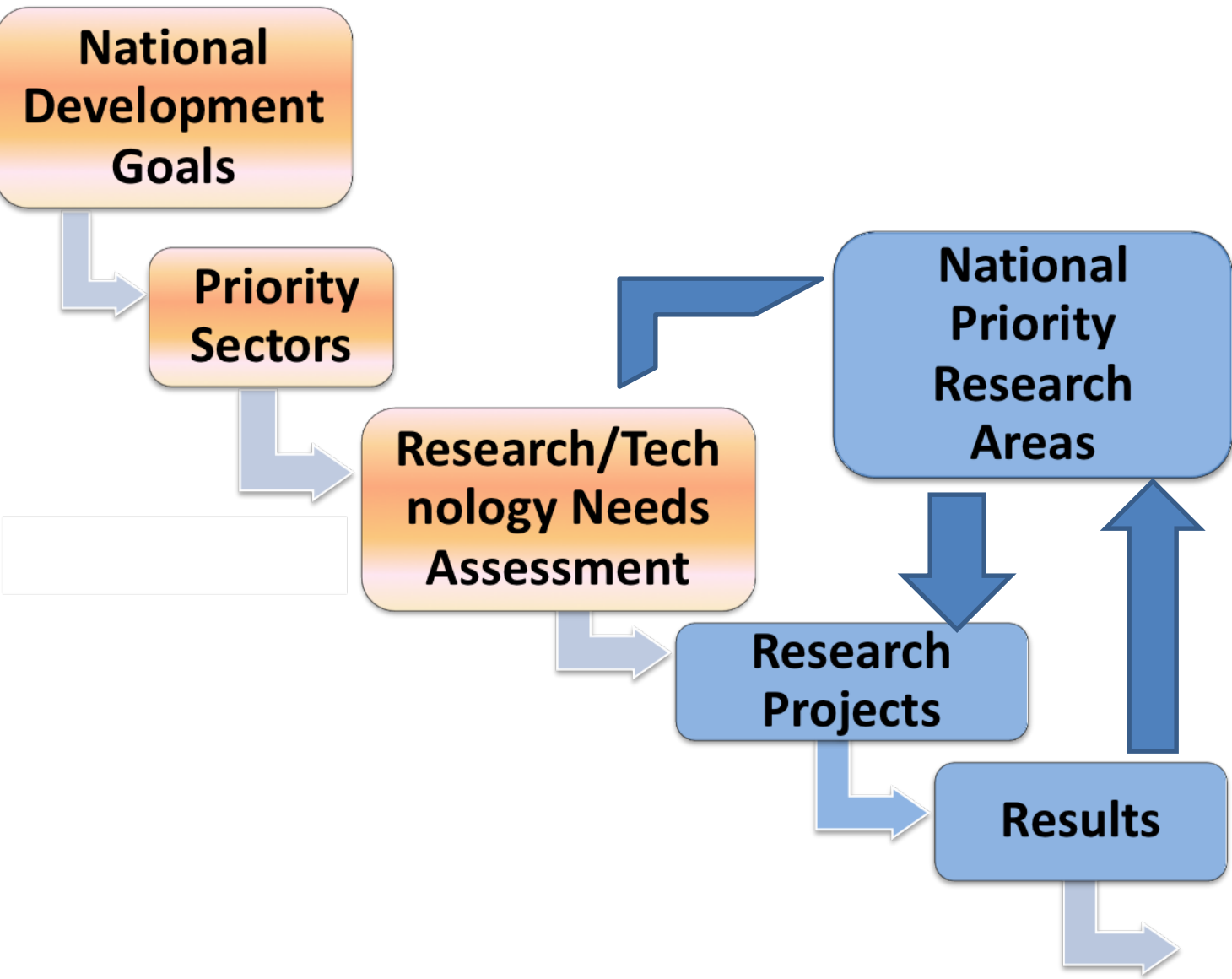
1. To provide evidence for lobbying to policy makers to enhance investment in R&D
2. Some Councils/Commissions for STI are already thinking of undertaking some estimation of the impact of R&D to the economy
3. Methodology currently being discussed
4. WIPO studies on the contribution of the copyright sector on the GDP have had positive results in some countries
5. Countries like Japan have shown the direct linkage between increasing in IP registration and growth of the GDP

2.6. Linking Research Agenda to Development Goals

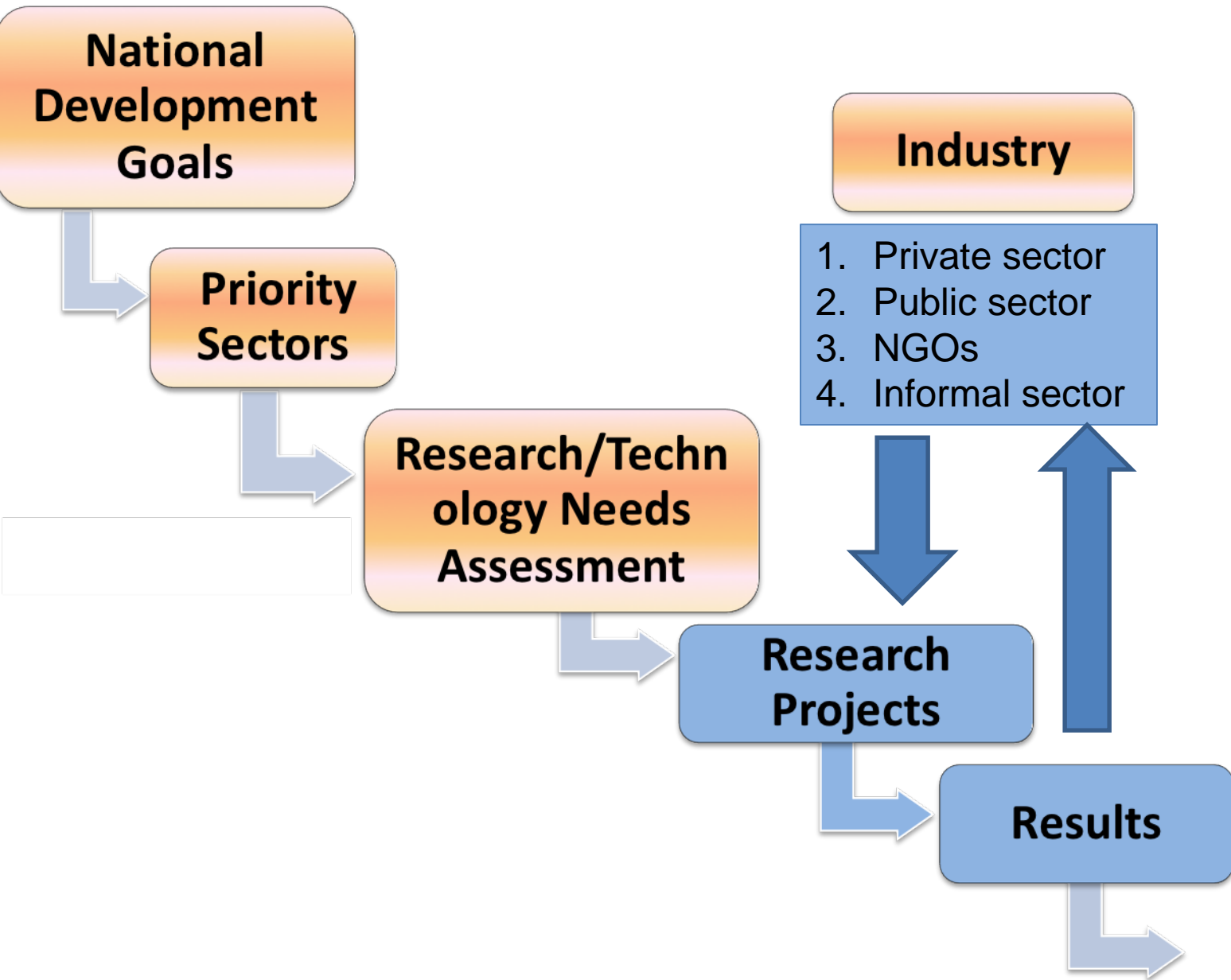
**Making Research
work for
development**



2.7. Linking Research Agenda to development agenda



2.6. Linking Research Agenda to development agenda



3. Basic requirements for effective University-Industry Partnership in knowledge generation, protection and transfer

- Clear understanding of the available options for commercialization of R&D results
- Effective institutional IP policy
- Effective institutional support structure

Basic Requirements for effective PPP

3.1. Routes for Technology Transfer by Universities and Research Organizations

- Own Exploitation
- Sell of IP rights
- Licensing
- Join Venture

None of these routes will work without involving the private sector

Basic Requirements for effective PPP

3.1a. Own exploitation

University start a company based on its IP rights

- The inventor is willing to be involved in the exploitation
- The university has the required resources to invest
- Can be done as a way of testing the market (piloting)
- Is a strategy to attract high dividend in future

Unfortunately

- Own exploitation is currently based on informal departmental production units, with no intention to grow or to make profit
- Just like most traditional inventors, most departments do not want to let go their IP assets even if they are not making money

Basic Requirements for effective PPP

3.1b. Sale of IP rights

University does this to:

- Get money back to invest in further R&D or product development
- Minimum risks, minimum returns
- Not preferred route because of lack of capacity to value the worth of the IP assets
- Companies are smarter, can get the technology through back door

Today not aware of a university that has sold its IP rights

Basic Requirements for effective PPP

3.1c. Licensing

- Most preferred route by universities, both locally and abroad
- University allows an investor to exploit the technology, while it retains the IP rights. In exchange the university is given royalty
- Case study to explain more

3.1d. Joint Venture

- Second most ideal
- University brings the technology and knowhow
- Private sector brings in finance and management skills
- Both make ideal partners
- Very few cases – perhaps due to mistrust between universities and private sector
- Some success made through pilot projects models

Basic requirements for effective technology transfer

3.2a. Effective Institutional IP Policy

- Provide guidelines on key issues related to creation, protection and commercialization of IP Assets
- Harmonize conflicting interest on various stakeholders particularly on the issue of ownership of IP rights and benefit sharing
- Define obligations and responsibilities of universities, research organizations and the Inventors

Basic requirements for effective technology transfer

3.2b. Effective Institutional IP Policy (key issues)

- Ownership of IP public funded research
- Benefit sharing
- Collaboration with the private sector
- Collaboration with other universities abroad
- Patenting or Publishing
- Promotions based on IP
- Funding of IP
- Tapping innovativeness of the youth
- Mining of the “lost” IP in publication and dissertation

Basic requirements for effective technology transfer

3.2c. Ownership of IP rights arising from publicly funded research Policy

- Most hotly contested during formulating IP policy
- **Best practice: University owns**
- Inventors recognized in the application and rewarded in the case of successful commercialization
- Must be guided by national laws

Basic requirements for effective technology transfer

3.2d. Ownership of IP rights arising from privately funded research

- Universities not sure how to handle this.
- Common feeling of researchers is that private sector should own
- **Best practice: University owns unless differently negotiated in the contract**

Basic requirements for effective technology transfer

3.2e. Ownership of IP rights arising from collaboratively funded research

- University not sure in most cases
- Money first, details later
- Source of conflict between IP offices and researchers
- Best practice: University owns unless differently negotiated in the contract

Basic requirements for effective technology transfer

3.2f. Benefit sharing

- Meant to reward innovation and inventiveness
- Must take care of all relevant stakeholders
- **Normally the most hotly negotiated clause**
- Common practice:
 - Inventor
 - Inventors department or research group
 - IP Office
 - IP fund
 - University

Basic requirements for effective technology transfer

3.2g. Benefit sharing

- Need to recognize patenting as an important R&D output for the purpose of promotion of researchers
- **Public or perish! This is no longer a problem**

Basic requirements for effective technology transfer

3.2g. Financing IP protection and commercialization

- University needs money to protect and commercialize
- Without commercialization everything else is useless

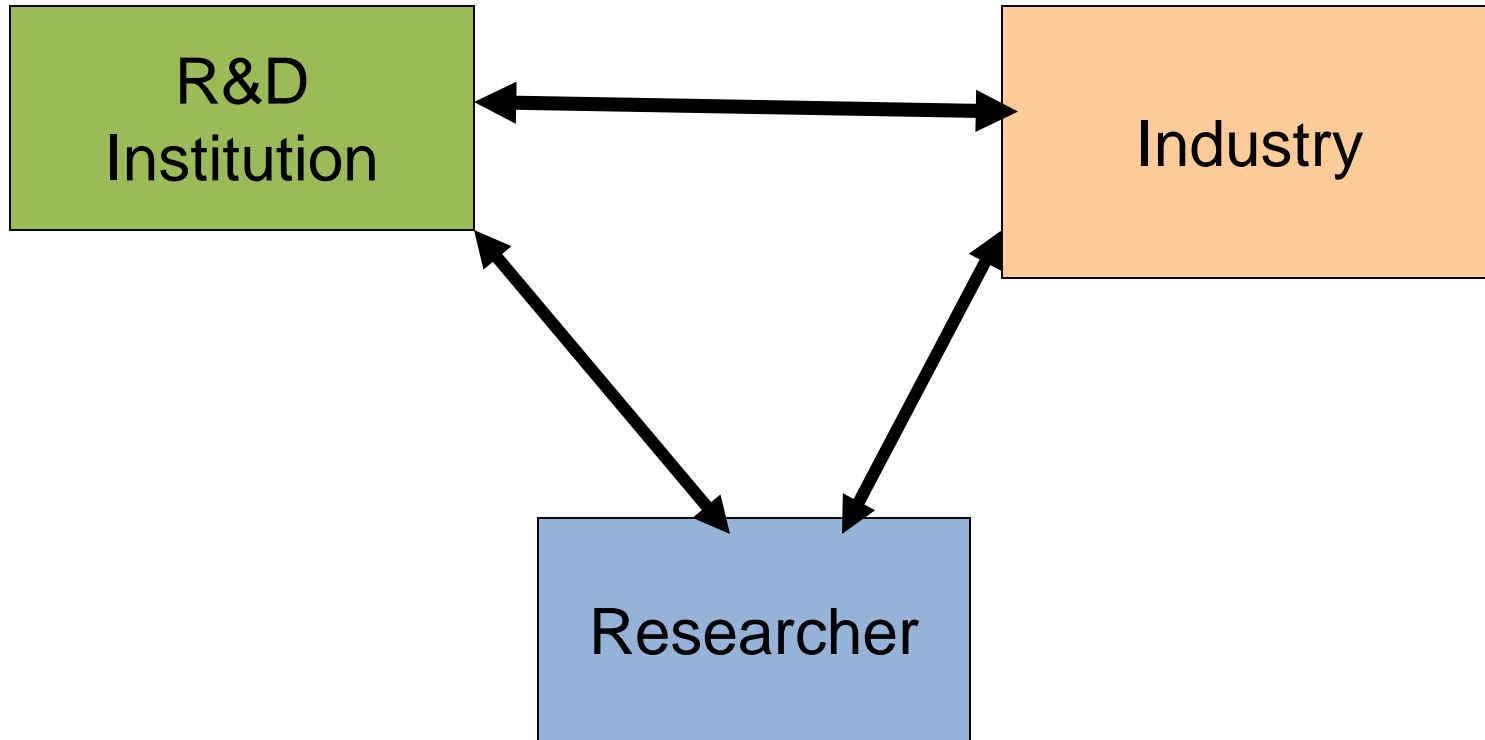
Basic requirements for effective technology transfer

3.2h. Get back your lost technologies through patent mining

- Universities have traditionally lost technologies in published dissertation and theses
- A policy of screening new theses and dissertations can help

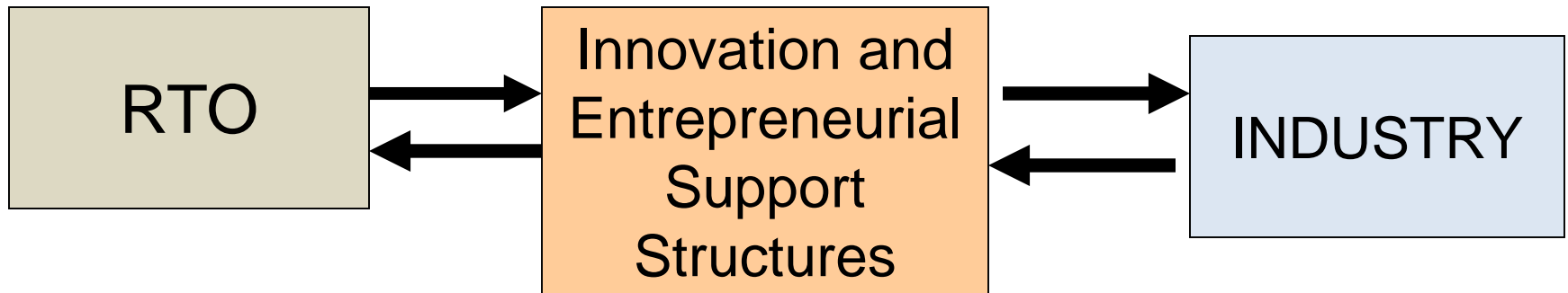
3.3a. Effective support structure for technology transfer

Barriers and challenges



Support structures

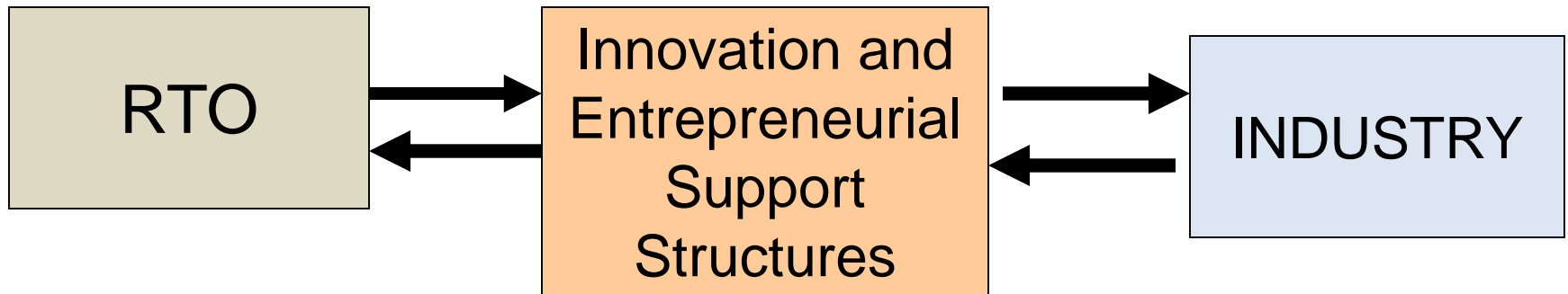
3.3b. What is support structures for TT



Administration Units that supports and facilitates disclosure, protection, technology transfer and commercialization of R&D results

Support structures

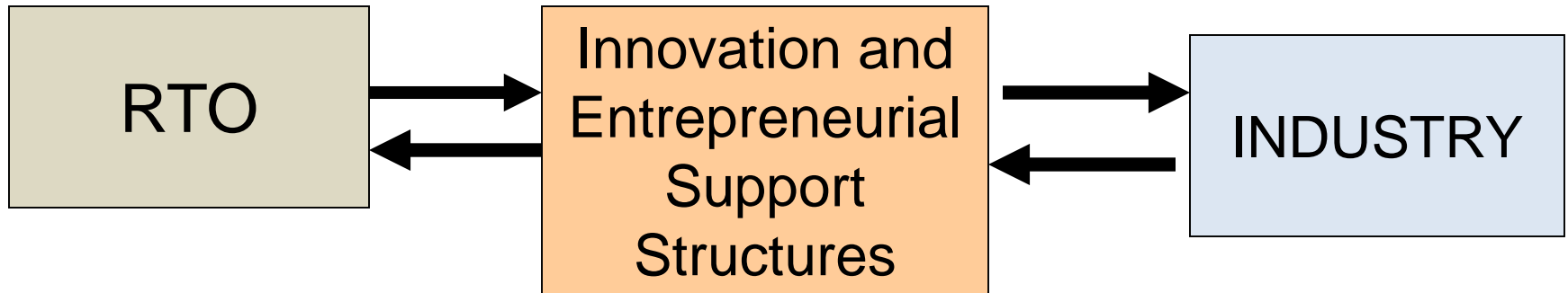
3.3c. Need for support structures for TT



Understands RTO culture, speaks the language of industry and behaves like a private enterprise

Support structures

3.3d. Examples of support structures



- Technology Transfer Office
- Business Incubation Services
- University Companies
- Industrial/Science Park

5. Some examples of technology transfer models in Kenya

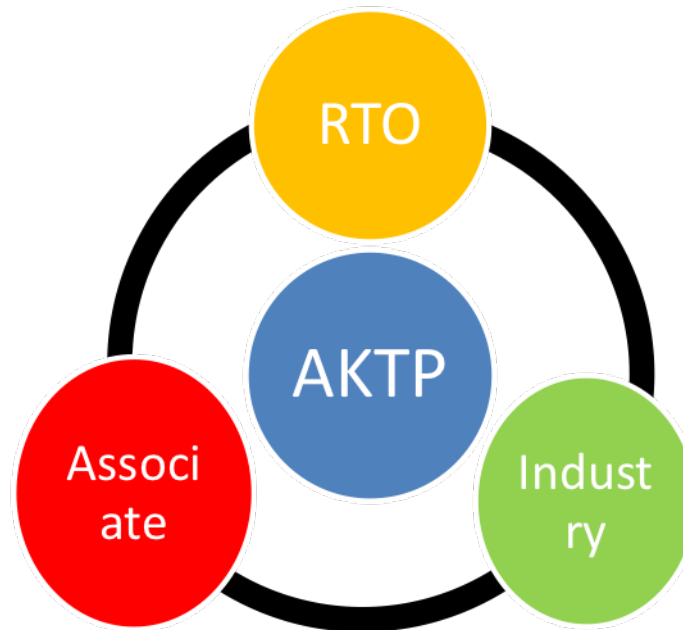
4.1. Technology Transfer through pilot plants by the Kenya Industrial Research and Development Institute

14. Pilot Projects

- Mini Tannery pilot plants (3)
- Honey Processing pilot plants (3)
- Banana Processing pilot plant
- Mango processing pilot plant
- Ceramic pilot plant
- Pineapple processing pilot plant (2)

4.2. Biofix Licensing Project University of Nairobi

The AKTP project



Biofix Licensing Project

University of Nairobi

A: The Product

- BIOFIX was developed by UoN, College of Agriculture and Veterinary Services in the 1970s
- UoN engaged in small scale production of BIOFIX which was marketed during agricultural shows (sales: 2000 kg per year)
- For 20 years, UoN was happy with this arrangement and was unwilling to license it out.

Biofix Licensing Project

University of Nairobi

B: The Company

- MEA Limited a private company established in 1977
- A leading provider of fertilizer in the country
- Has sales outlets throughout the country and in Tanzania, Uganda and Rwanda
- in 1996 the company decided to diversify to organic fertilizer in line with increased global demand for organic product

C: Key Feature of the Licensing Agreement

- It involved licensing of knowhow and trademark
- Exclusive licensing
- Covered several (8) countries
- It involved one off payment and royalty based on sales
- It specify minimum performance
- It allows joint marketing
- Took care of improvement
- It did not allow sub licensing
- It allow joint ownership of any IP that arises out of the collaboration.

D: Ten Years later

D1: Expanded market

- Ksh 20 million large scale sterilization laboratory was built in 2010 and Kshs 10 million autoclave acquired in 2016. This has increased production to 21000 kg per year from 2000 per year by UoN
- Biofix product used in Kenya, Malawi, Zambia, Rwanda, Uganda, Nigeria and Ghana
- Due to its high performance and effectiveness, it has attracted international clients such as Clinton Foundation, USAID, N2Africa

D2: Strengthened collaboration

- UoN and MEA recently developed a new packaging material that increases the shelf life of the product from 3 to 8 months
- UoN and MEA have managed to reduce contamination of the inoculants to zero
- To date some 200 UoN students have been attached at MEA

D3: Impact on the economy

- 225,000 household farmers in Africa have benefited
- Soybean production increases from 600kg/ha to 1200kg/ha. This is more income to the farmers

4.3. Chandaria Business Innovation and Incubation Center – Kenyatta University



- Launched in 2011
- Incubation period 12 months
- Aims at supporting 100 innovations per year (mainly students)
- Blends academic research and innovation through establishment of companies
- Focuses on ICT, energy, agro processing

4.4. Moi University's Textile Company – Rivatex East Africa Limited

- Company was established in 1976 by Kenya Government and a consortium of foreign investors
- The factor is an integrated mill with ginning, spinning, weaving processes
- The company operated well and profitably until 2000, when it stopped operations in 2000



- In 2007, Moi University acquired Rivatex and is currently using it for research, training and manufacturing purposes
- The company has tapped into expertise of Moi University to develop textile dyes that are commercially viable in order to reduce costs.
- These products are protect at KIPI



5. CONCLUSIONS

- Technology Transfer is key for knowledge to be transferred from RTOs to Industry
- For effective transfer, a suitable policy framework and support structures is required
- There are some success stories every where that should encourage us all. However, more still needs to be done to make TT from RTOs to have impact on economic development