



# Update of TB policies in Brazil and in the World

The Tuberculosis Research Agenda in Brazil

Dr. Afranio Kritski, REDE TB  
Brasilia, November 3rd, 2016

# Outline

- ❑ Rede TB Activities 2001-2016
  
- ❑ Brazilian Response to End TB Strategy 2013-2016
  - ❑ National TB Research Agenda
  
  - ❑ Interaction between Rede TB and NTP-MoH
  
- ❑ Final Remarks

# Coordinating Areas

# Research Sites



# TB RESEARCH IN BRAZIL (2001-2016)

- Private and public industry
- Research Institutes

MDIC

- Researchers from Universities and Research Institutes

MST

Civil Society

- Stop TB Partnership
- NGOs-Advocacy
- Biomedical Associations

- NIH
- E.U.
- PAHO

Int. Org

Rede TB

NTP- SVS  
Decit-SCTIE  
Fiocruz

MoH

MSD

MEd

Universities  
Technology  
Schools

**MCT:** Ministry of Science and Technolgoy; **MoH:** Ministry of Health **MEd:** Ministry of Education;  
**MDIC:** Ministry of Industry and Trade ; **MSD:** Ministry of Social Development; **Civil Society:** NGOs, Health Council, Professional Associations

# Research Platforms - Rede TB



The diagram illustrates the research platforms of Rede TB. It features four interlocking gears in a horizontal row, each containing a text box. From left to right, the gears are yellow, pink, orange, and light orange. Below these gears is a large green gear-like shape containing a wide text box. The text boxes are white with black text.

**Fundamental  
Translational  
Research**

**Clinical  
Research**

**Implementation  
Research**

**Health System  
Research**

**Research Capacity Building and Training**

# Portfolio REDE TB (2001-2016)

## Fundamental Research

- New PPD
- Bacfil (manual)
- MLPA
- Proteomic and lipidomic platform
- Fusion Proteins
- BioMarkers
- New drugs
- Mucosal rBCG
- Moreau RDJ Vaccine
- Auxotrophic MTB vaccine
- INCT-TB (CNPq -2001)

- Research Training

Long Term Projects

## Translational Research

- New PPD
- Kit SIRE Nitratase
- Q3 /Real time PCR
- Bacfil automated
- TB sprint plus
- MLPA
- Detect MDRTB
- 45 lipidic fractions
- 5 Fusion proteins
- New drugs (IQG 607)
- INCT-TB (CNPq- 2001)

- Report Project (NIH)
- Research Training

Medium term projects

## Clinical Research

- Linezolid/Levo/Gati/Moxi PK and EBA studies
- Moxifloxacin trials for active TB
- TMC 207 trial -MDR-TB
- Rifabutine and RIF trials fo LTBI
- STAND (PAMZ) Trial
- Detect-TB kit study (with brazilian industry)
- INCT-TB (CNPq-2001)

- Report Project (NIH)
- Research Training

Short term projects

## Operational /Implementaion Health System Research

### New Diagnostic Tests

- RIF vs INH for LTBI
- Xpert vs AFB for TB
- MGIT vs LPA vs Xpert - MDRTB
- MGIT vs LJ for DSTB
- Detect-TB kit /Clinical Score

### Effectiveness of TB control in

- Primary Health Care Level
- Vulnerable Populations
- Pediatric TB /DR/MDR-TB
- TB and co-morbidities

- Research Training

Medium term projects

Discovery

S

L5

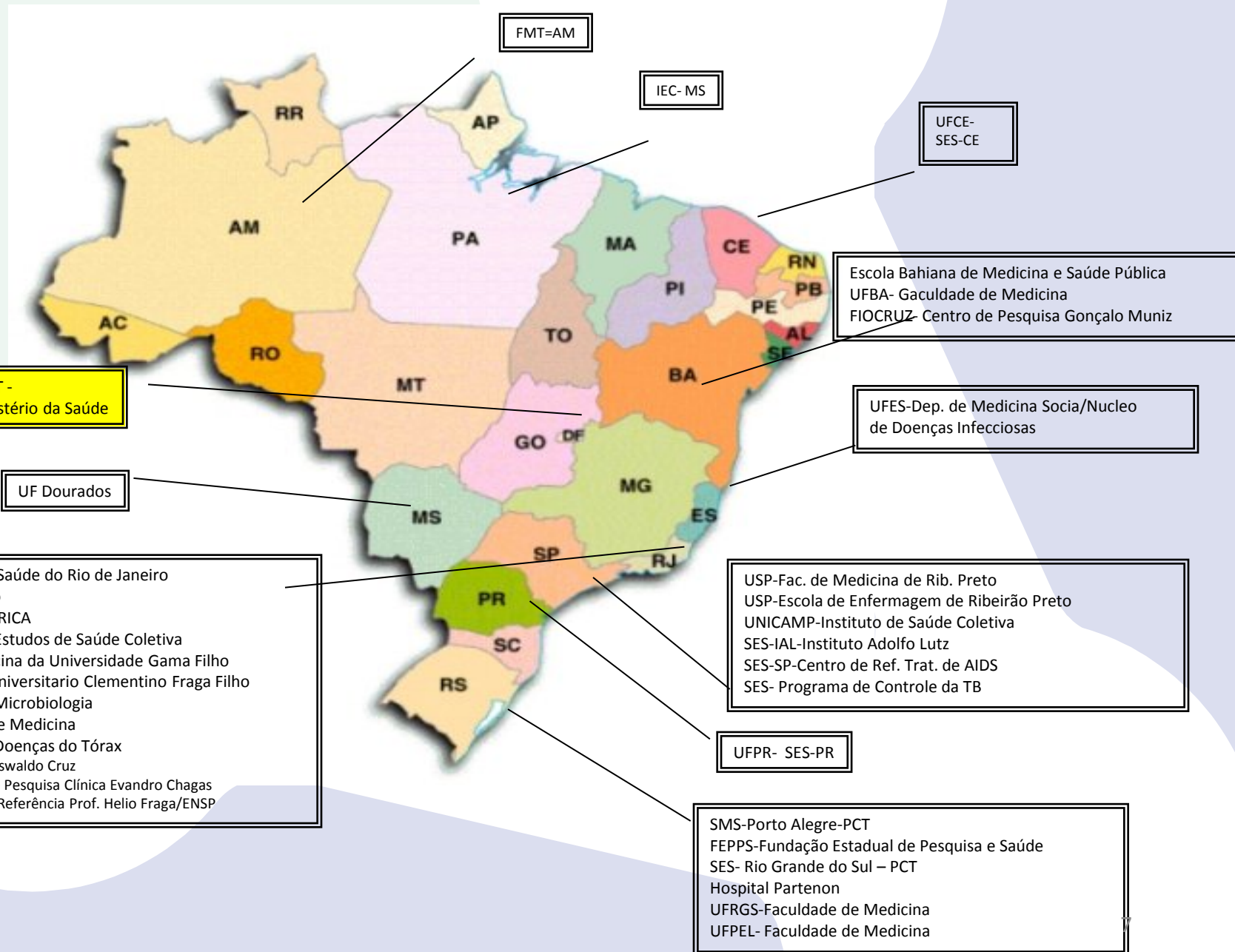
L0

Preclinical

Clinical

Access to Patients

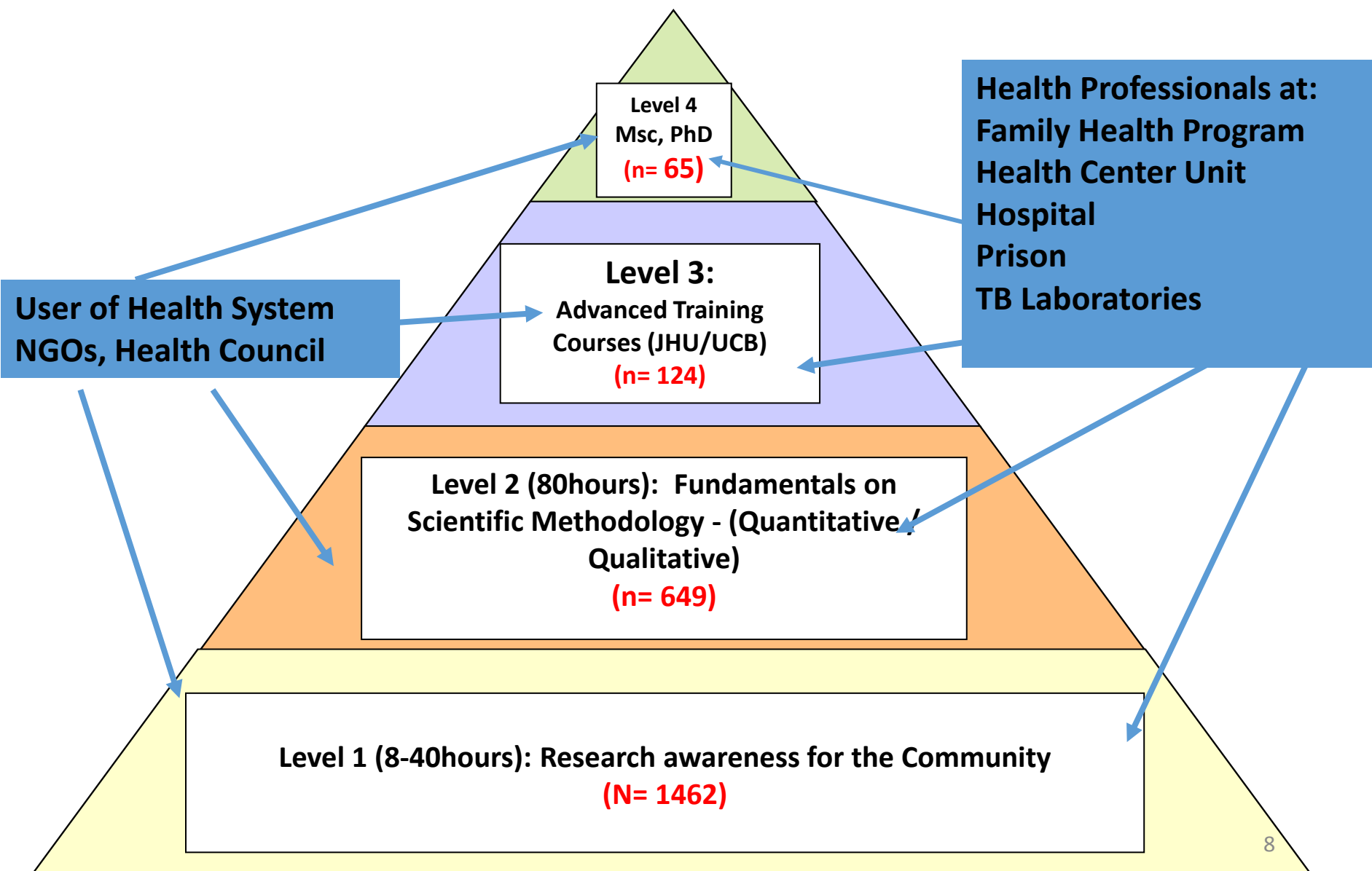
# CAPACITY BUILDING FOR TB RESEARCH – 2002-2015





# Participants in ICOHRTA Courses

Oct 2002/Jul 2015: **2300**





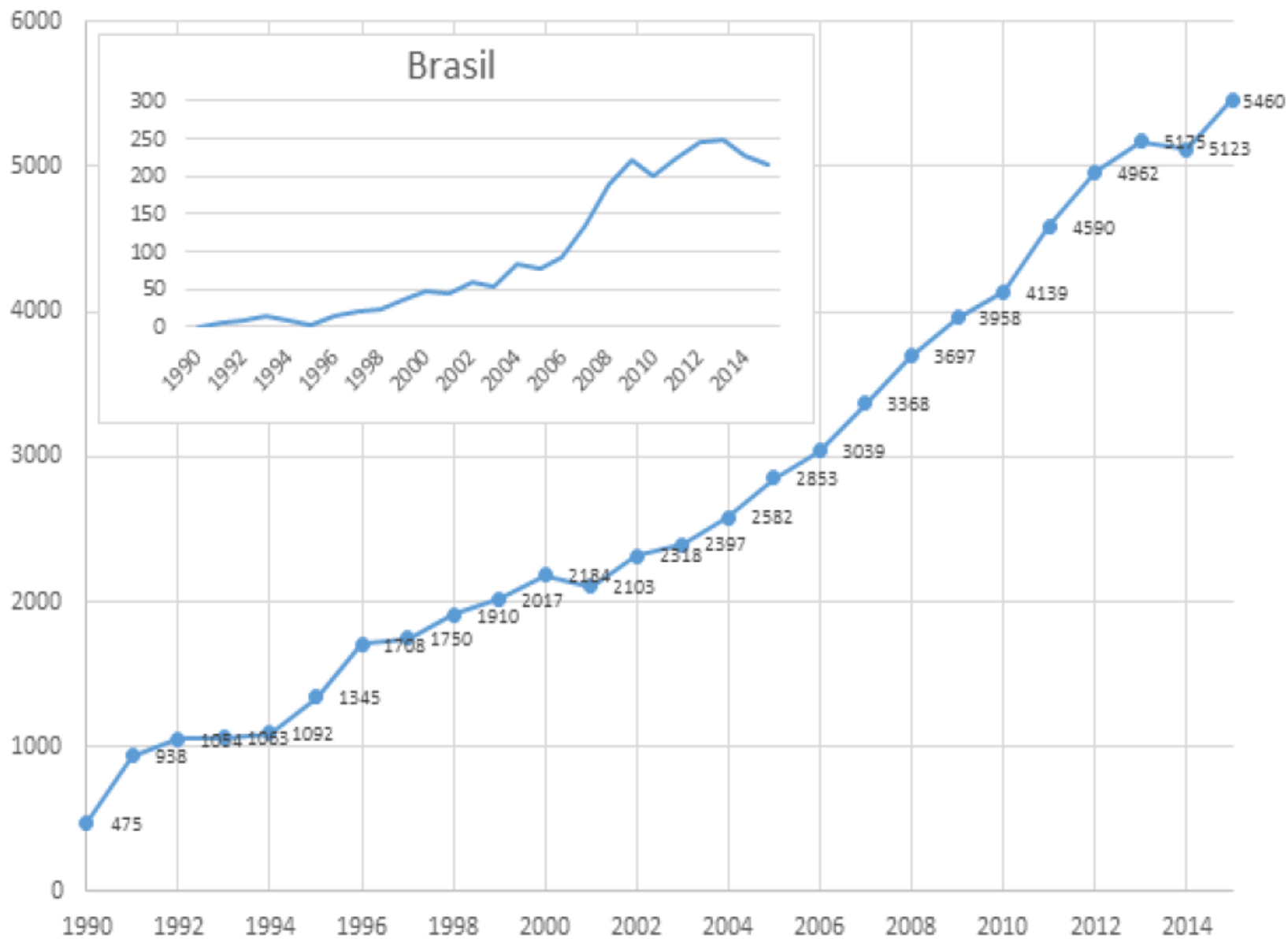


fig 1: Global TB publication period 1990 – 2015) and Brazil.

<http://data.worldbank.org/country> available at June 06 2016

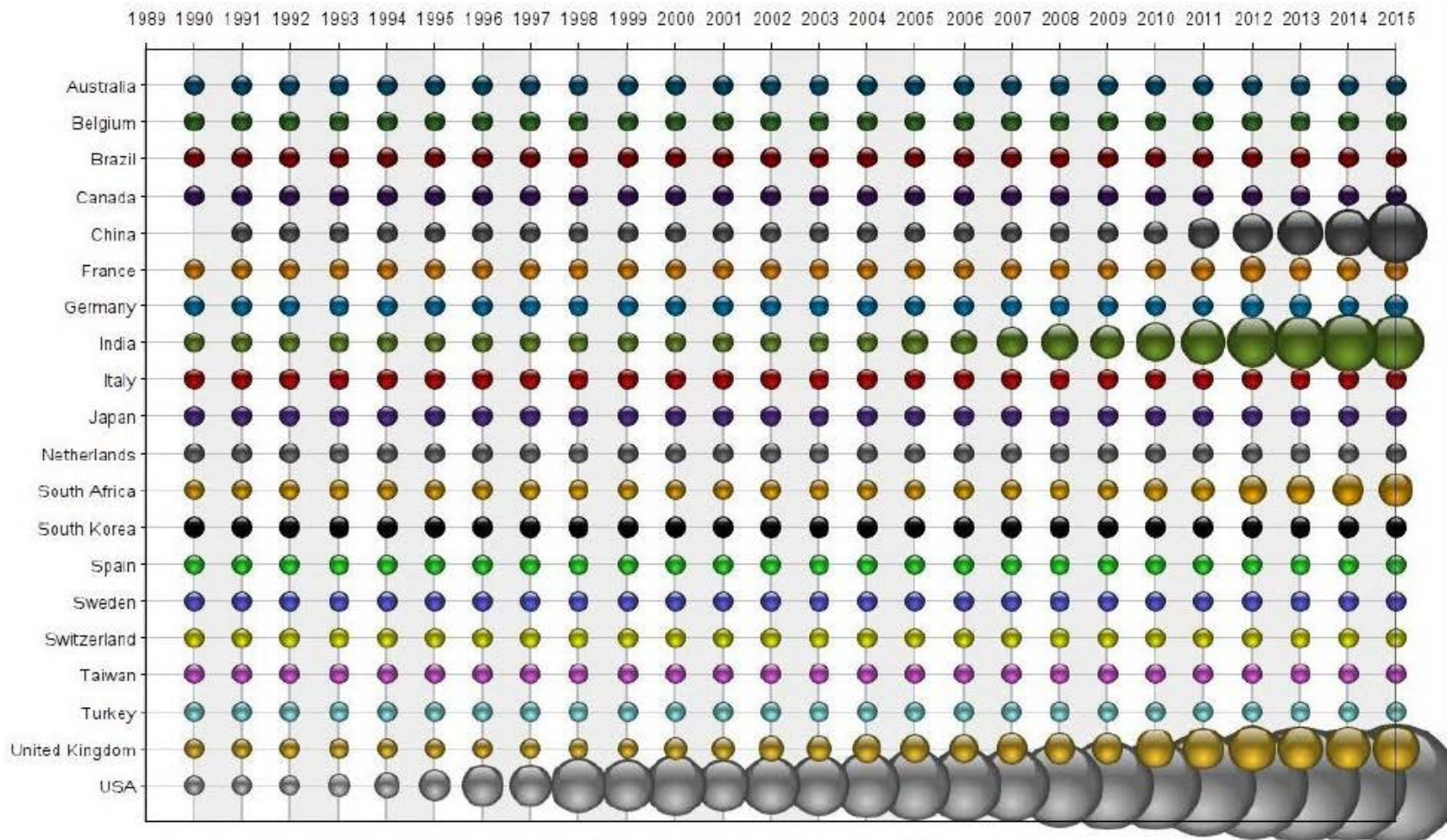
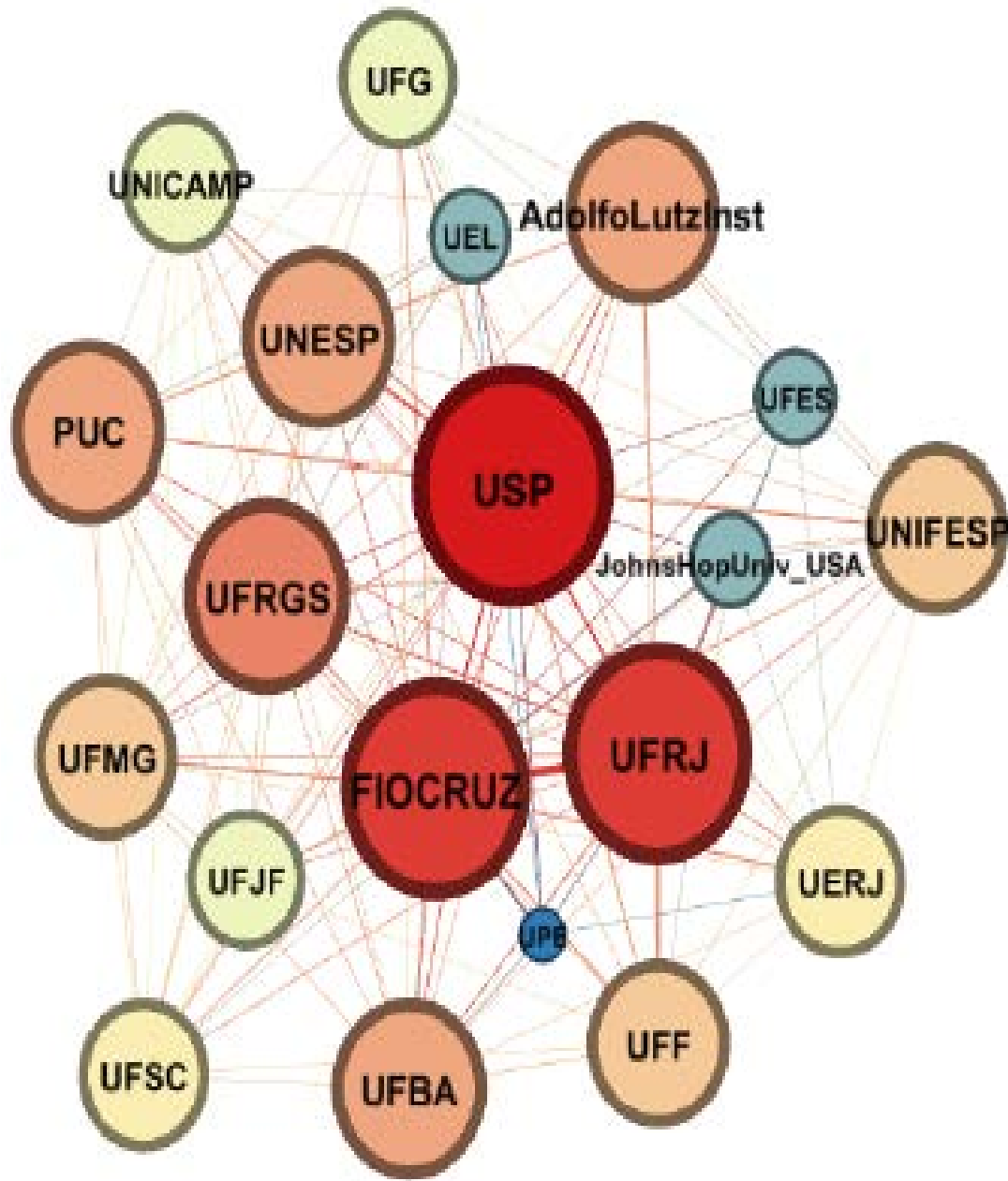


Fig 3: Annual TB publication in 20 countries.

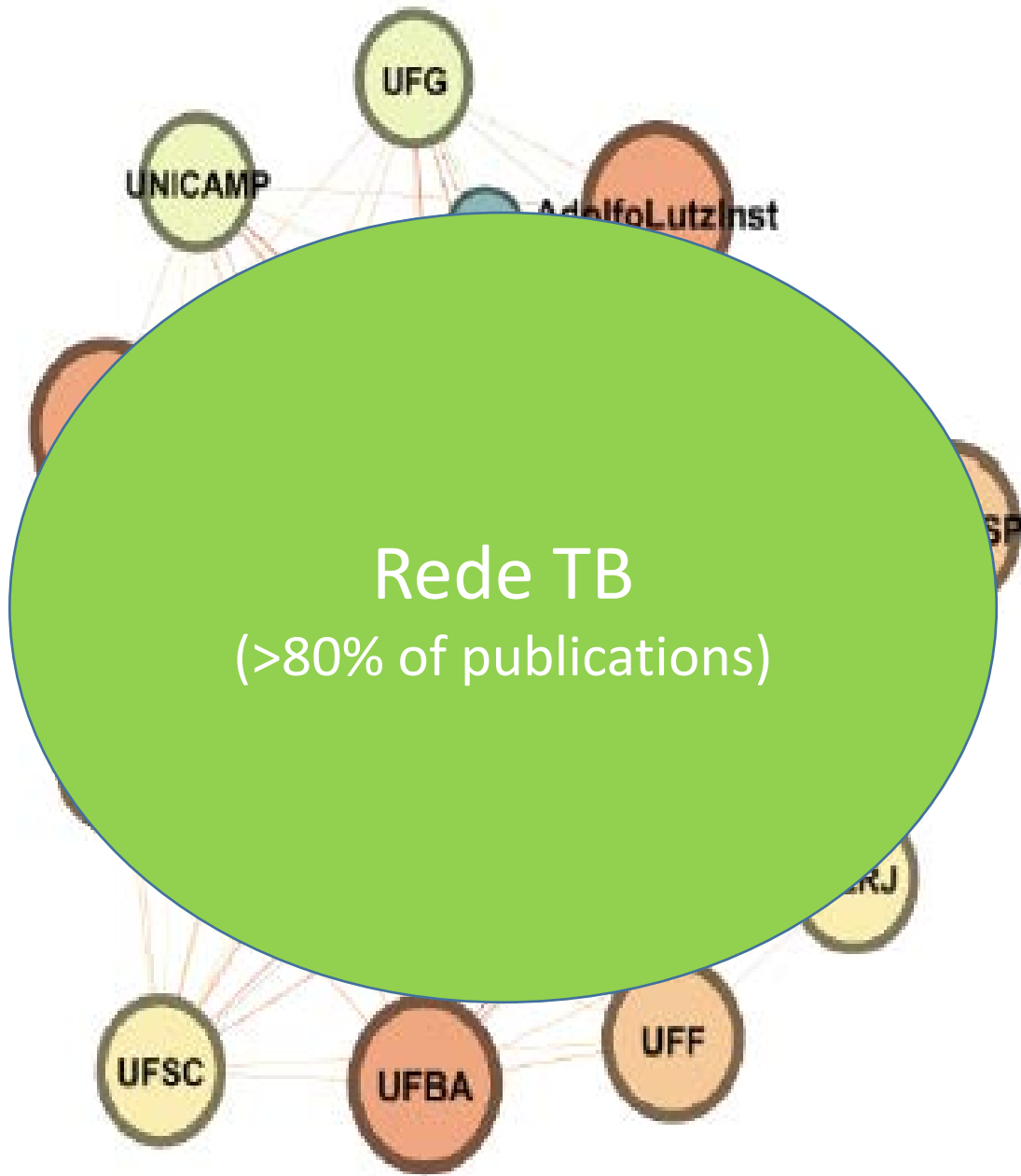


<http://data.worldbank.org/country> available at June 06 2016

# TB RESEARCH IN BRAZIL according to Institutions (1990-2015)



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# Brazilian Response to "Global End TB Strategy 2013"

- Brazilian TB Research Roadmap
  - carried out by REDE TB, NTP and WHO in Sao Paulo City
  - Use Research Platform Approaches to achieve a National consensus

# Roll out of Pillar 3

## Global Action Framework for TB research

To promote, enhance and intensify TB research and innovation



# 10 year vision: Specific Objectives Globally:

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1. Global TB Research Networks (**STAG-WHO, 2015 & 2016**)
2. New diagnostic tests – Point of care;
3. New drugs – Short treatment of DR-TB (and DS-TB)
4. New vaccine(s) – infancy, childhood and adolescents
5. Implementation Research (biomedical and biosocial approaches) – Impact evaluation of incorporation of new tools

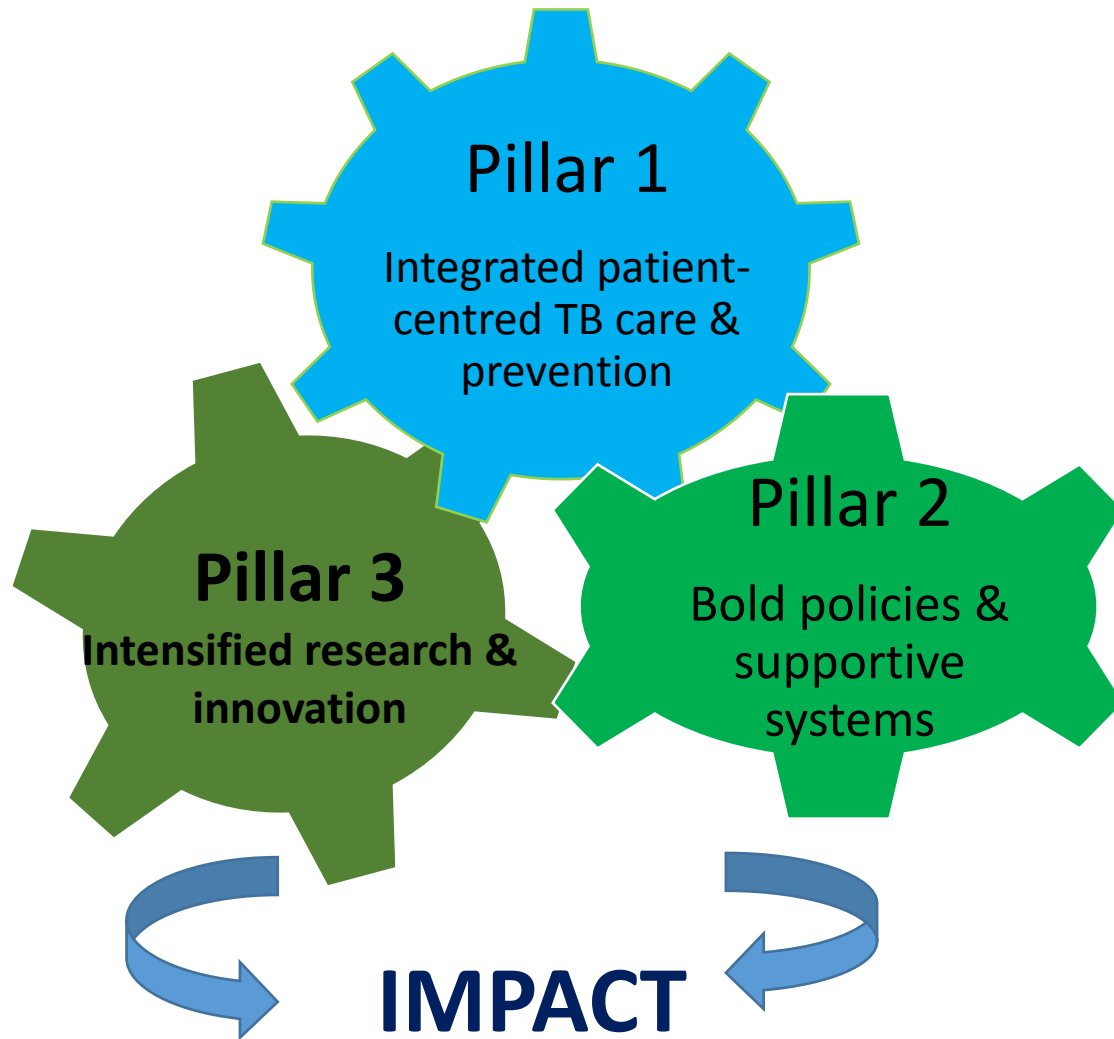


# 5 year plan: By 2020 what is needed? In middle income countries with TB burden

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1. Establish National TB Research Network
2. Develop National TB Research Agenda
3. Plan to build and maintain capacity for TB Research
4. Develop National funding mechanism for TB Research
5. Integrate research communities at regional and international collaboration level

# Research & Innovation for Impact



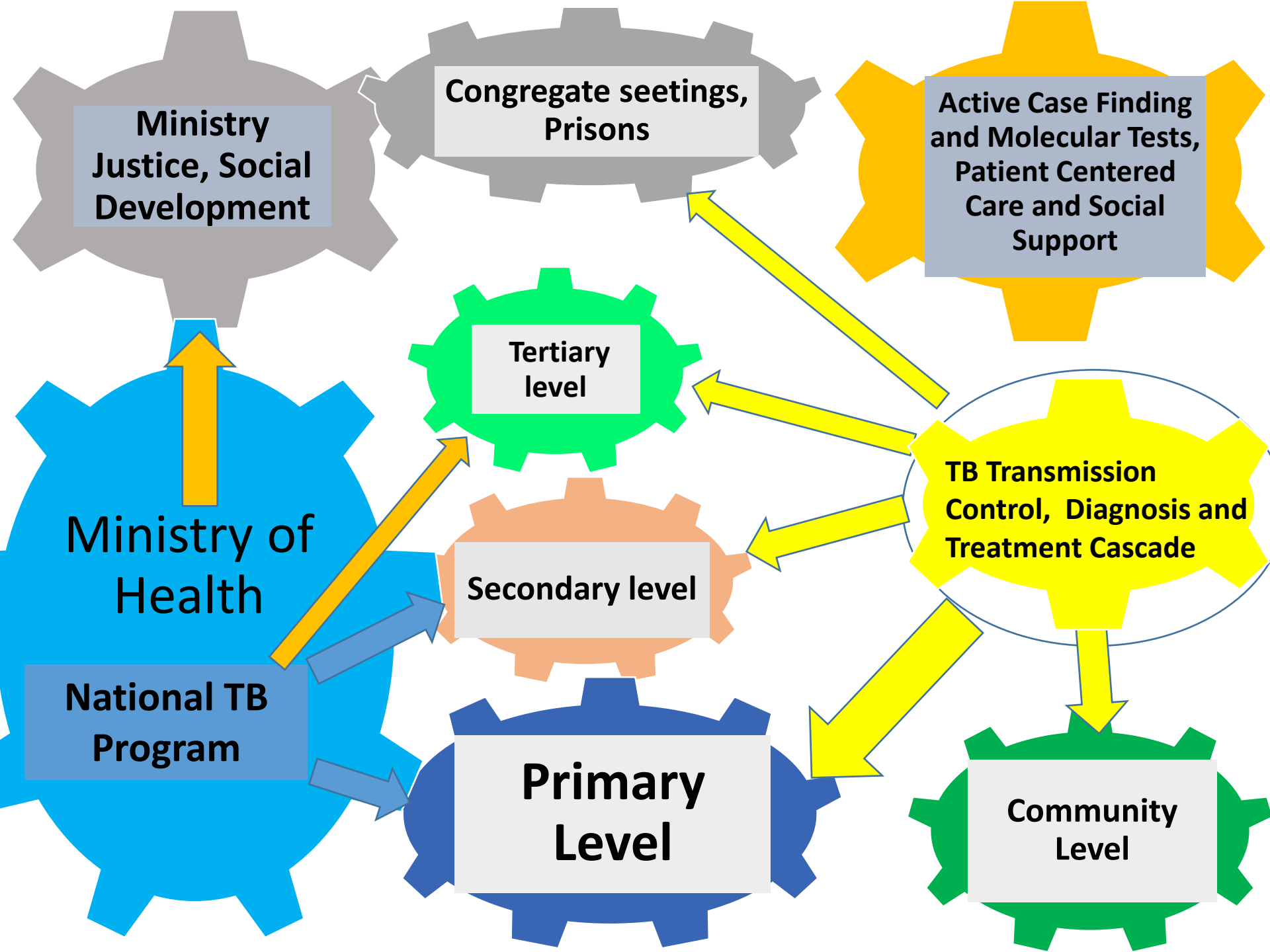
*How to incorporate Pillar 3 ?*

# 5 year plan: By 2020 what is needed? In middle income countries with TB burden

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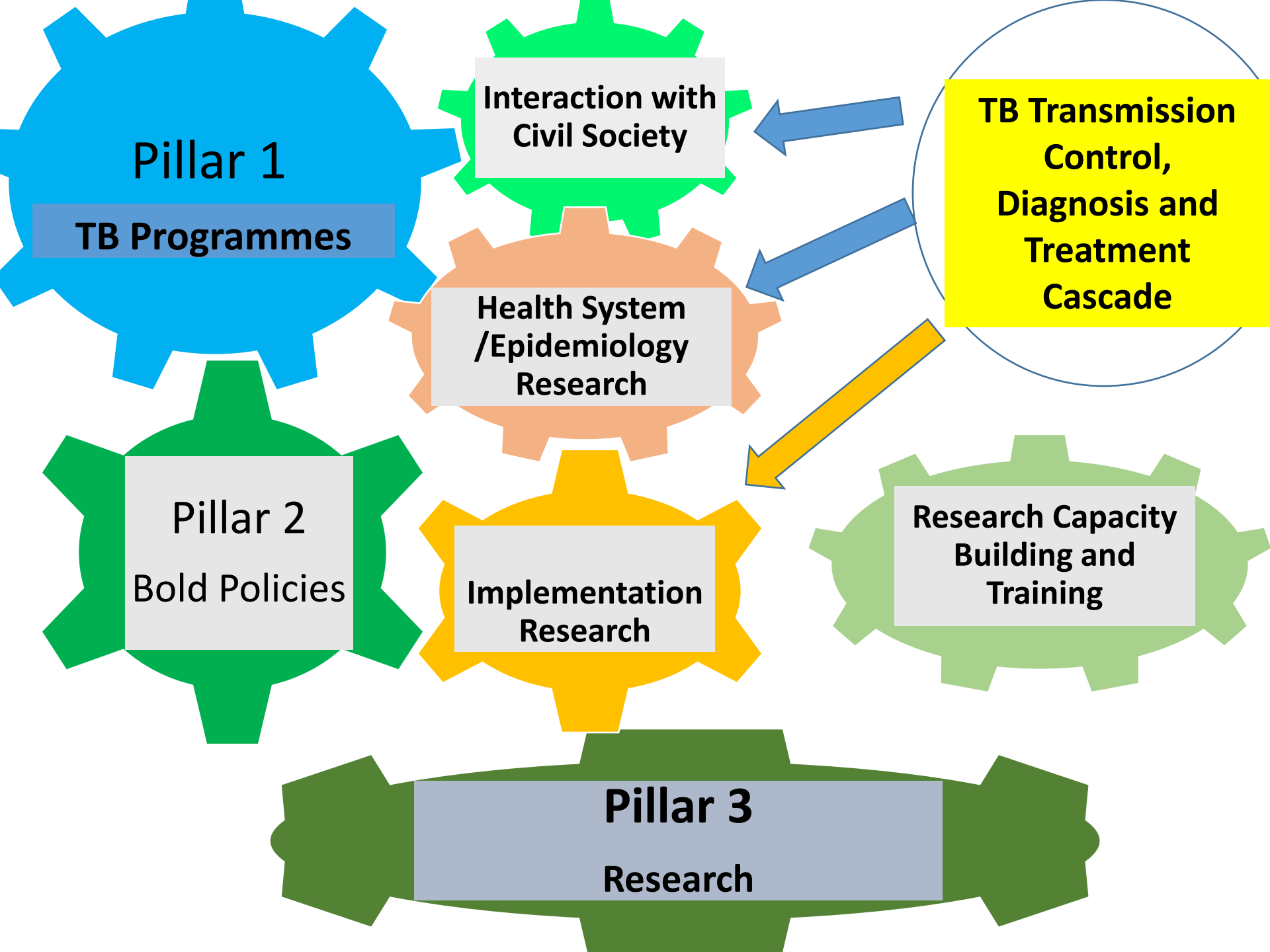
1. Establish National TB Research Network (2001)
2. Develop National TB Research Agenda (2015)
3. Plan to build and maintain capacity for TB Research
4. Develop National funding mechanism for TB Research
5. Integrate research communities at regional and international collaboration level

- **Going beyond the NTP**
- **Government advocacy (interaction with Congress)**
- **NTP has incorporated Research and Social Protection as High Priority**
- **Intersectorial Approach:** include Ministry of Education, Science Technology, Social Development, Justice, Labor, Trade and Foreign Affairs
- **Promoting interaction of Pillar 3 with Pillars 1 and 2 through implementation science to induce policies changes inside the NTPs**



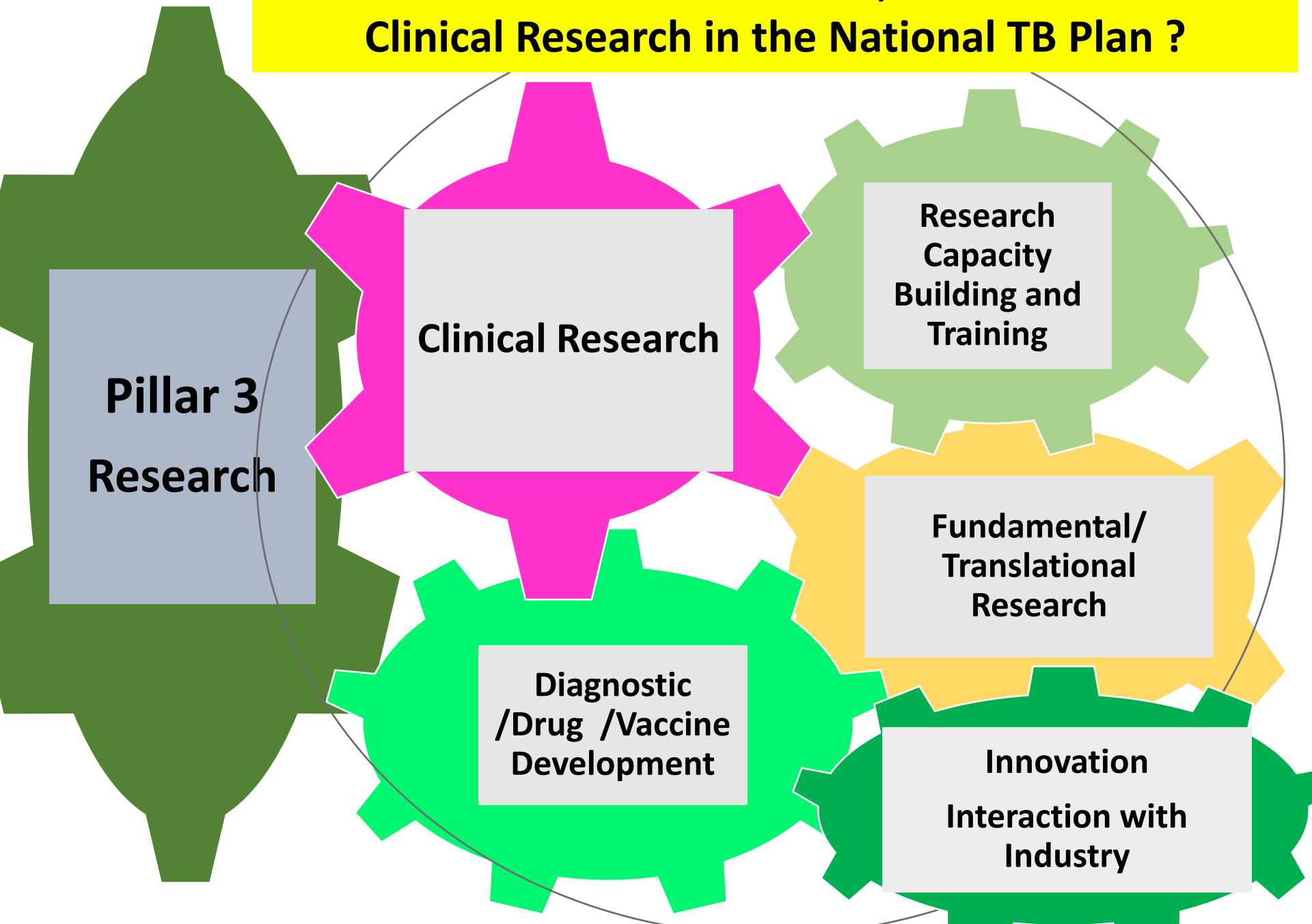
# Implementation Research in Health

- ❑ *One of the greatest challenges is how to take proven interventions and implement them in the real world.*
- ❑ *Implementation research is particularly important in supporting the scale-up of interventions and their integration into health systems at the national level.*
- ❑ ***Foster interaction between NTP and Academia***





# How to include Fundamental, Translational and Clinical Research in the National TB Plan ?



**Pillar 3  
Research**

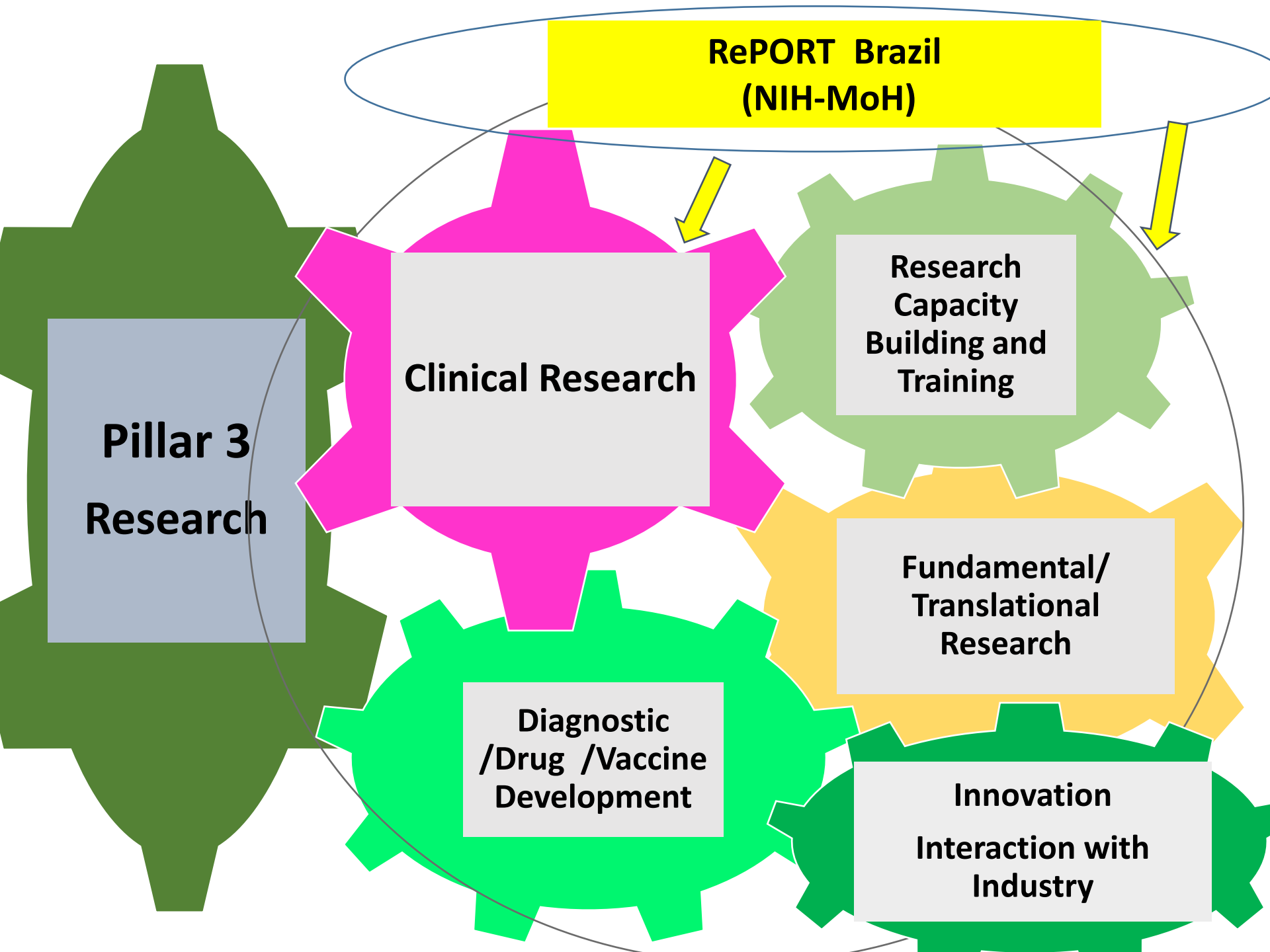
**Clinical Research**

**Research  
Capacity  
Building and  
Training**

**Fundamental/  
Translational  
Research**

**Diagnostic  
/Drug /Vaccine  
Development**

**Innovation  
Interaction with  
Industry**



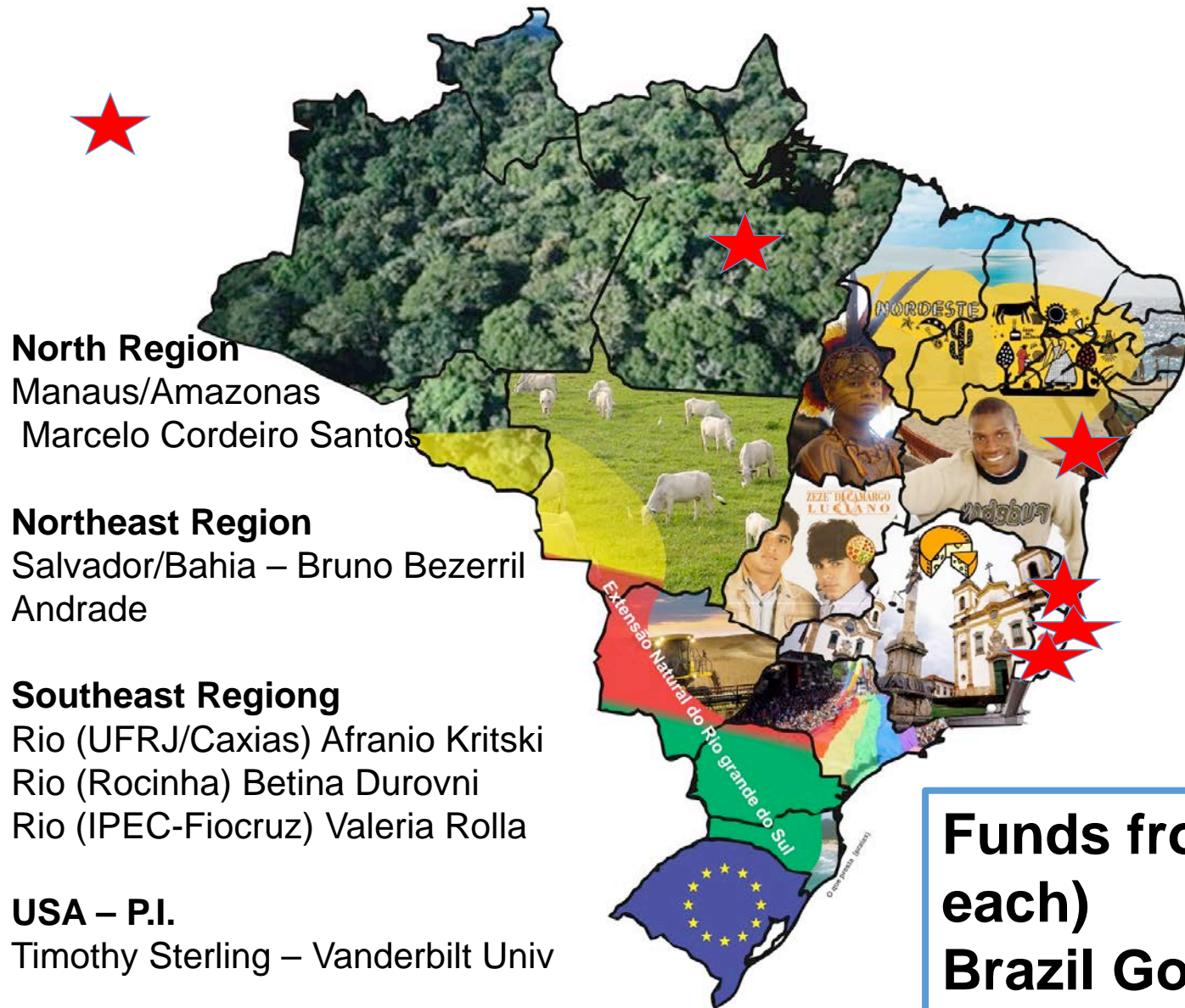
# Report International Projects - 2015

- Focus on Integrating Fundamental, Translational and Clinical Research Platforms
- Brazil, India, South Africa

- Cohort TB cases and Close Contacts
- Use Common Protocol
- Central Data Management
- Central Biorespository

# RePORT Brazil

## Study sites / 3 regions (2015)



**Funds from (50% each)  
Brazil Government –**

# Principal areas for cooperation

- **Translational studies**

  - M. tuberculosis* transmission

  - Role of mixed infection**

  - Biomarkers** to identify patients at risk for active TB  
and infection TB

  - Risk factors for tuberculosis recurrence,

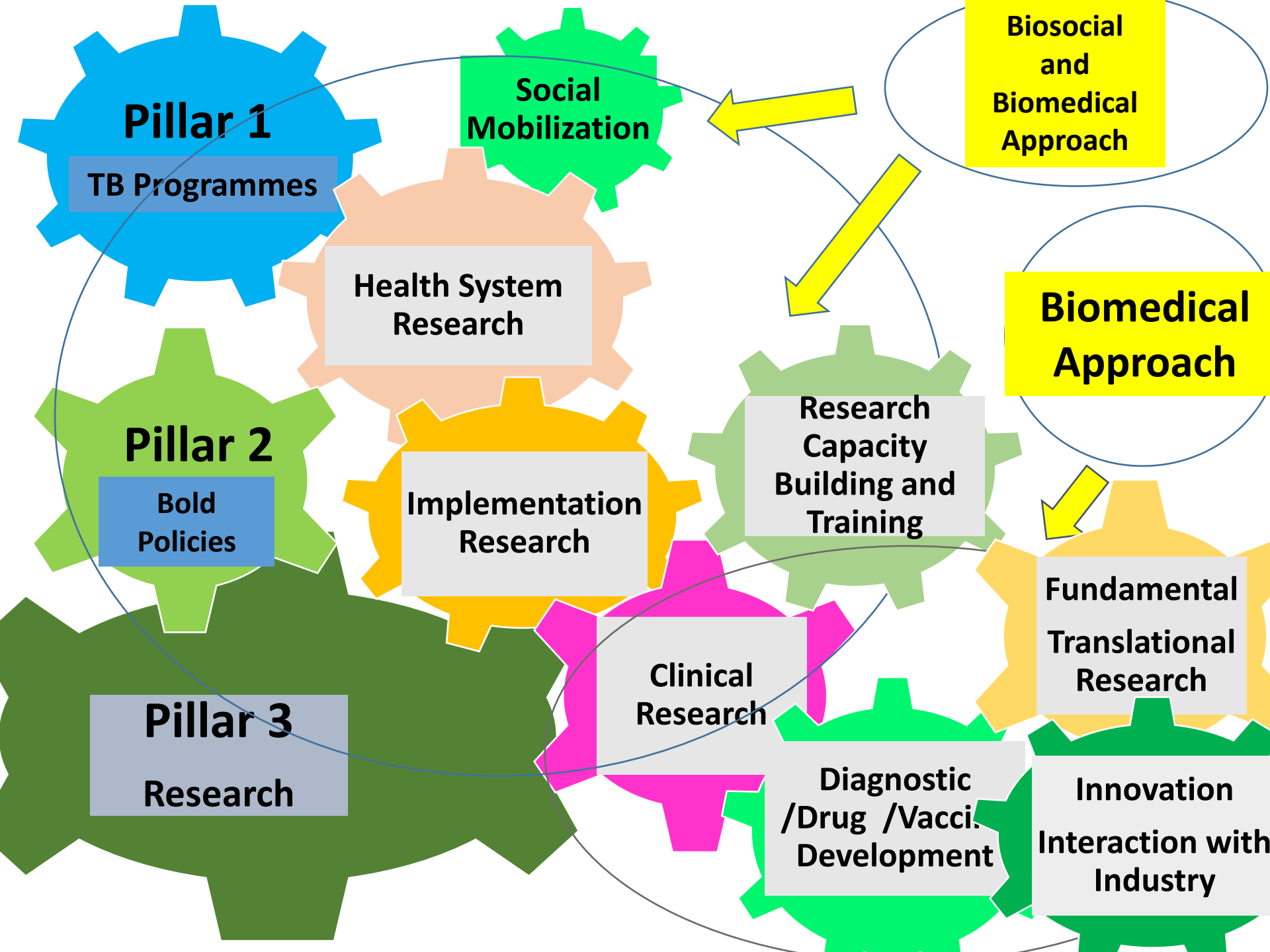
- **Epidemiologic studies**

  - TB comorbidities, (**HIV, Diabetes, Mental Diseases,**  
Hepatitis, other Tropical diseases)

  - TB in Women/Children

  - Nutritional status

- **Clinical trials** (diagnosis and therapeutics)



# Brazilian Response to "Global End TB (2015)

- Developed National TB Research Agenda – June 2015
- **73 Research Projects were identified from 7 Research Platforms**



Revista da Sociedade Brasileira de Medicina Tropical 49(1); Jan-Feb, 2016  
<http://dx.doi.org/10.1590/0037-8682-0330-2015>

Technical Report

## Brazilian Response to *Global End TB Strategy*: The National Tuberculosis Research Agenda

*Afranio Kritski<sup>[1],[2]</sup>, Draurio Barreira<sup>[3]</sup>, Ana Paula Junqueira-Kipnis<sup>[1],[4]</sup>, Milton Ozorio Moraes<sup>[5]</sup>, Maria Martha Campos<sup>[1],[6]</sup>, Wim Mauritz Degraeve<sup>[7]</sup>, Silvana Spindola Miranda<sup>[1],[8]</sup>, Marco Aurelio Krieger<sup>[1],[9]</sup>, Erica Chimara<sup>[1],[10]</sup>, Carlos Morel<sup>[11]</sup>, Margareth Pretti Dalcolmo<sup>[1],[12]</sup>, Ethel Leonor Noia Maciel<sup>[1],[13]</sup>, Maria do Socorro Nantua Evangelista<sup>[3],[14]</sup>, Teresa Scatena Villa<sup>[1],[15]</sup>, Mauro Sanchez<sup>[1],[16]</sup>, Fernanda Dockhorn Costa<sup>[3]</sup>, Inacio Queiroz<sup>[17]</sup>, Martha Maria Oliveira<sup>[1],[11]</sup>, Ruy Souza Junior<sup>[3]</sup>, Jose Roberto Lapa e Silva<sup>[1],[2]</sup> and Antonio Ruffino-Netto<sup>[1],[18]</sup>*



# TB Research Agenda Revisited (2016)

- Electronic Survey was carried out at the Fifth National Workshop of Rede TB, Maceio 22-24, August, 2016
- Weblink: <https://enketo.ona.io/x/#Y9zX>
- Respondents – (n=150)
- From 73 Research Projects; **21 priorities** were chosen (3 among each 7 Research Platforms)

## Platform 2 - Development, production and evaluation of new diagnostic tests

- a) Encourage the production and validation of national recombinant PPD by national laboratories, and immunological tests for TB diagnosis.
- b) Identify biomarkers for TB diagnosis and to predict of developing TB, not based on sputum tests.
- c) Laboratory and Clinical Validation of prototypes for TB diagnosis already developed at national or international level in central laboratories of the states [LACENS] and collaborating laboratories (research laboratories)

## Platform 4 - Epidemiological, operational and health system research

- a) To evaluate the effect of cash transfer programs and other social benefits in epidemiological and operational indicators for TB control.
- b) To evaluate stigma, discrimination and prejudice of TB patients in users and professionals perspectives.
- c) To evaluate the impact of incorporation of new technologies in different health care level according to the distribution of social inequalities on tuberculosis

## Platform 6 - Social mobilization

- a) Evaluate the impact of the relationship between local leaders x health services.
- b) Evaluate the impact of communication strategies used by civil society organizations working with tuberculosis.
- c) Evaluate the impact of communication actions, advocacy and mobilization on adherence to TB treatment and reduction of stigma and prejudice.

# Activities - 2016

- Allocation focal point for Pillar 3 within the NTCP
- Creation of new position at Rede TB (foster the interaction with government)
- Pillar 2 and 3 was incorporated in the National TB Plan
- Creation of National CCAP led by the NTCP and Rede TB

# Activities - 2016

- Interaction with CAPES (Ministry of Education) focusing on funding the Capacity Building for research
- Interaction with Conitec /MoH (like Nice at UK) to streamline the incorporation of technologies and analyze their impact on Health System
- Interaction with TB Researchers and NTP Coordinators from Russia, China, India, South Africa pursuing the creation of BRICS TB Research Network

# Final remarks

When we are implementing new IC technologies or revising National Guidelines

- **use impact assessment framework** that evaluate effectiveness, equity, health system, scale up and horizon analysis combined with qualitative analysis and sustainability perspective



# Acknowledgments

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Fiocruz

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CNPq –MCTI

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CAPES-MEC

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[kritskia@gmail.com](mailto:kritskia@gmail.com)

[www.redetb.org](http://www.redetb.org)