



**APOF** NGO

Association of Pathologists beyond Borders





## **3<sup>rd</sup> WAKA HPV AFRICA SYMPOSIUM**

Kinshasa, DR Congo

2-4 December 2015

**An NGO devoted to surgical pathology:  
Challenges faced and yet to be addressed**

Paolo Giovenali

# Mission

- Implementation of projects aimed at developing pathology and cancer diagnostics in developing Countries
- Introducing cytological screening activities , in particular Pap smears and needle aspiration cytology for cancer prevention .
- Sending volunteer pathologists , biologists or biomedical laboratory technicians
- Organization of residential stages in Europe for doctors or technicians
- Building pathology laboratories
- Training and the education of the local medical and technical staff,

# Our main projects

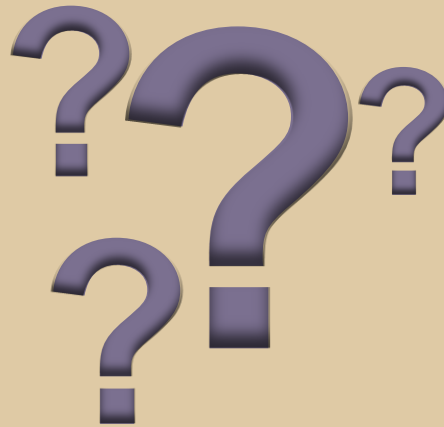
- Establishment of Pathology Department in Bugando Medical Centre, Mwanza - **Tanzania** (2000- 2007)
- Establishment of Pathology Department in Mtendere Mission Hospital, Chirundu - **Zambia** (2007-2011)
- Support of the Pathology Department at Bethlehem - **West Bank** (2006-2010)
- Establishment of Pathology Department in CDS hospital, Fianarantsoa - **Madagascar** (2008)
- Improving diagnostic capabilities in Lacor Hospital (Gulu district). **Uganda** (2008- 2014)
- Functional strengthening of Pathology Department in Nsamby St. Francis Hospital, Kampala. **Uganda** (2010-2014)
- Establishment of Pathology Department in the **Republic of Djibouti**. (2012-2015)
- Training of health personnel in Southern and Lusaka provinces under the plan for prevention and treatment of cervical cancer. **Zambia** (2013-2014)
- Screening program for cervical and breast cancer in Imo State. **Nigeria** (2012-2015)
- Training of technicians in cytology and histopathological diagnosis by tele-pathology in the eastern provinces of North Kivu, Mungbere, **Democratic Republic of Congo** (2012-2015)
- Women Profile for Africa: screening program for cervical cancer at Kinshasa, **Democratic Republic of Congo** (2015-2015)

# Our main partners and donors

- AISPO NGO – Associazione Italiana per la Solidarietà fra i Popoli - Italy
- ASSIATEL - Italian Association of Lab Technicians
- CEI - Italian Episcopal Conference
- CESVI NGO – Cooperazione e Sviluppo - Italy
- Chiesa Evangelica Valdese - Methodist and Waldesian Churches
- ESP – European Society of Pathology
- Italian Cooperation
- Fondazione Umberto Veronesi - Italy
- Province of Venice - Italy
- SIAPEC - Italian Society of Pathology and Cytology
- UNDP (United Nations Development Programs)
- University of Florence - Italy

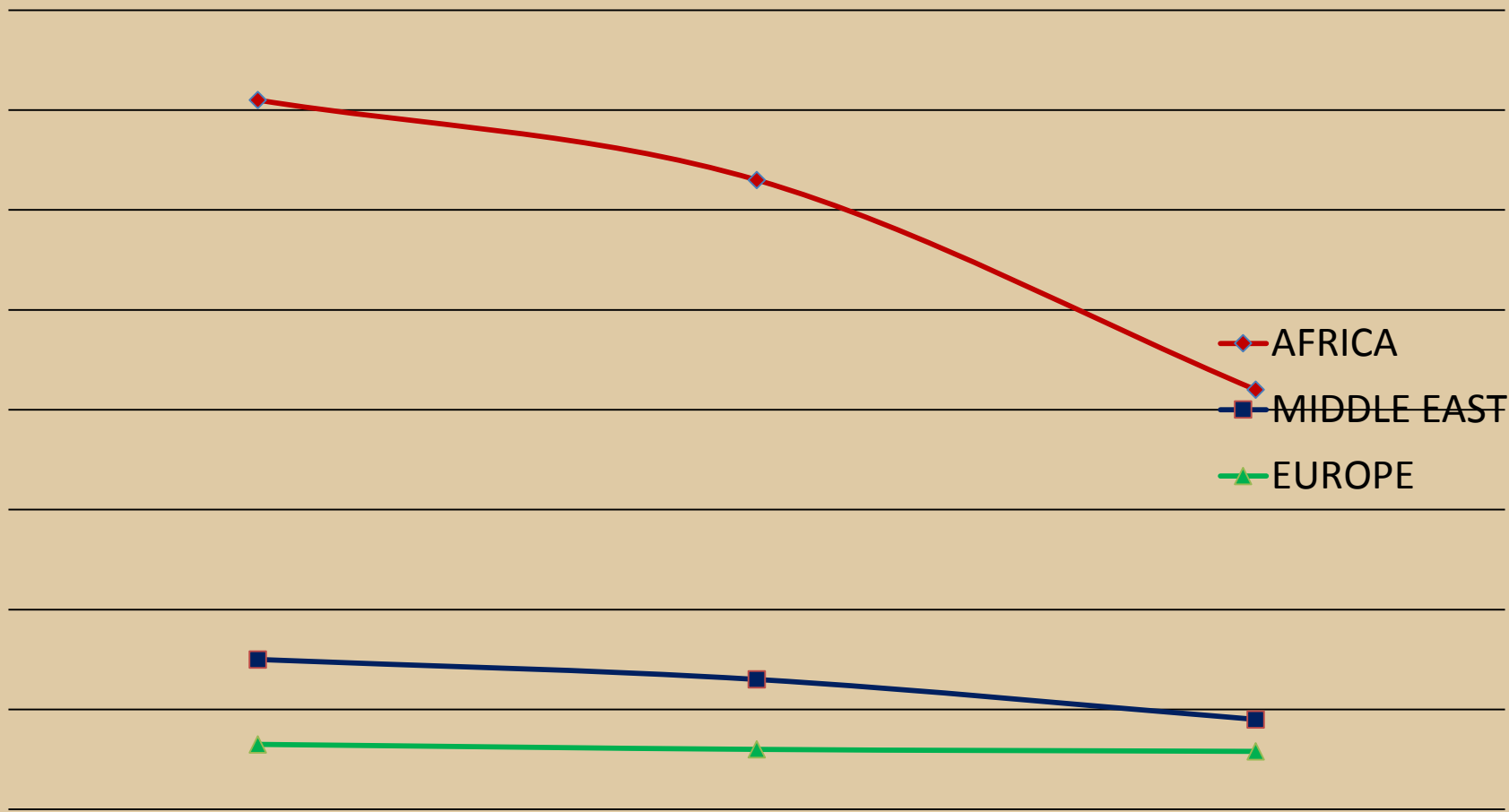
# Pathology Services in Developing Countries

**WHY**



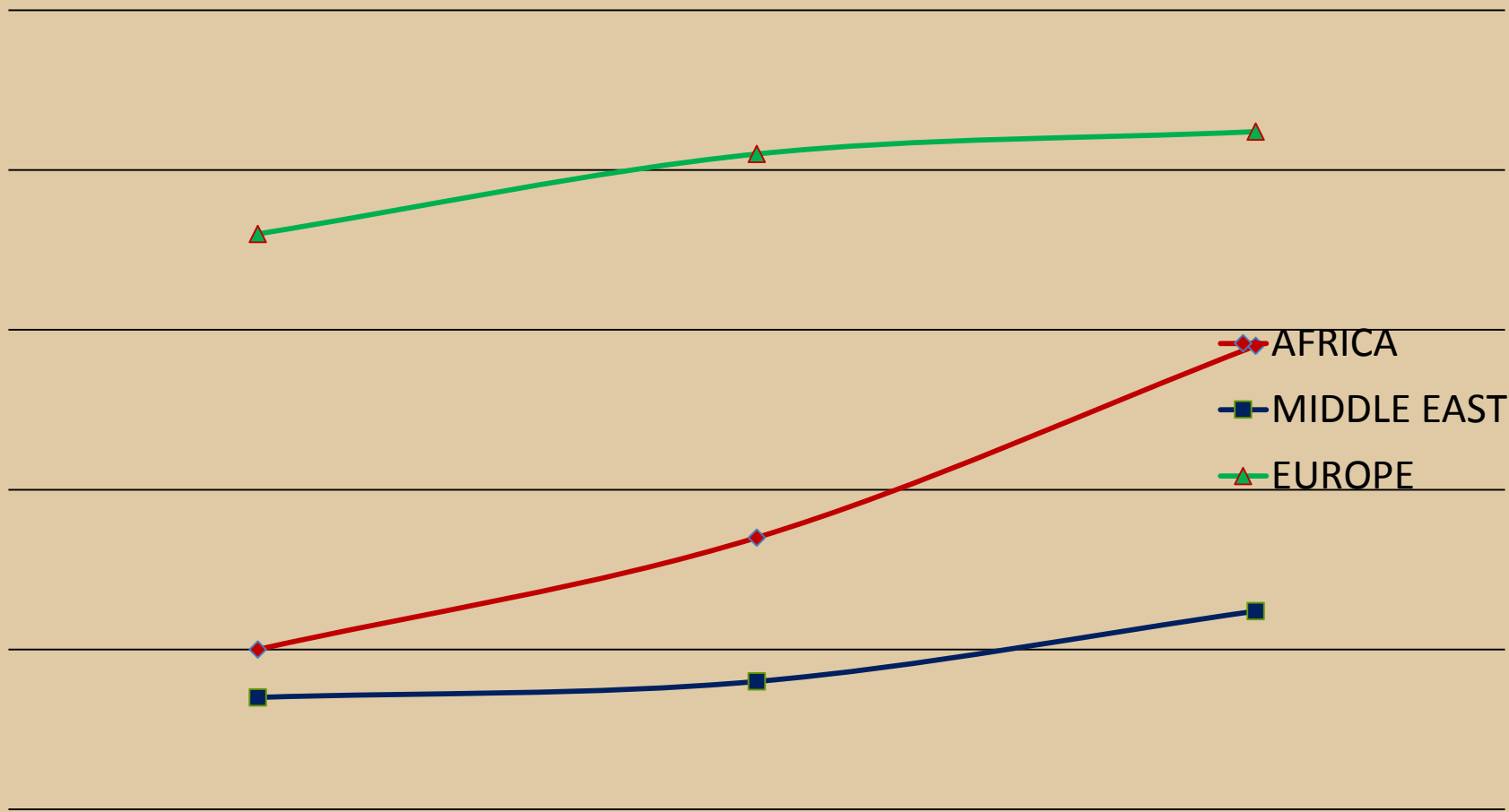
# Projected deaths (000s) by cause in WHO Regions

## Infectious disease , maternal and perinatal condition and nutritional deficiencies



# Projected deaths (000s) by cause in WHO Regions

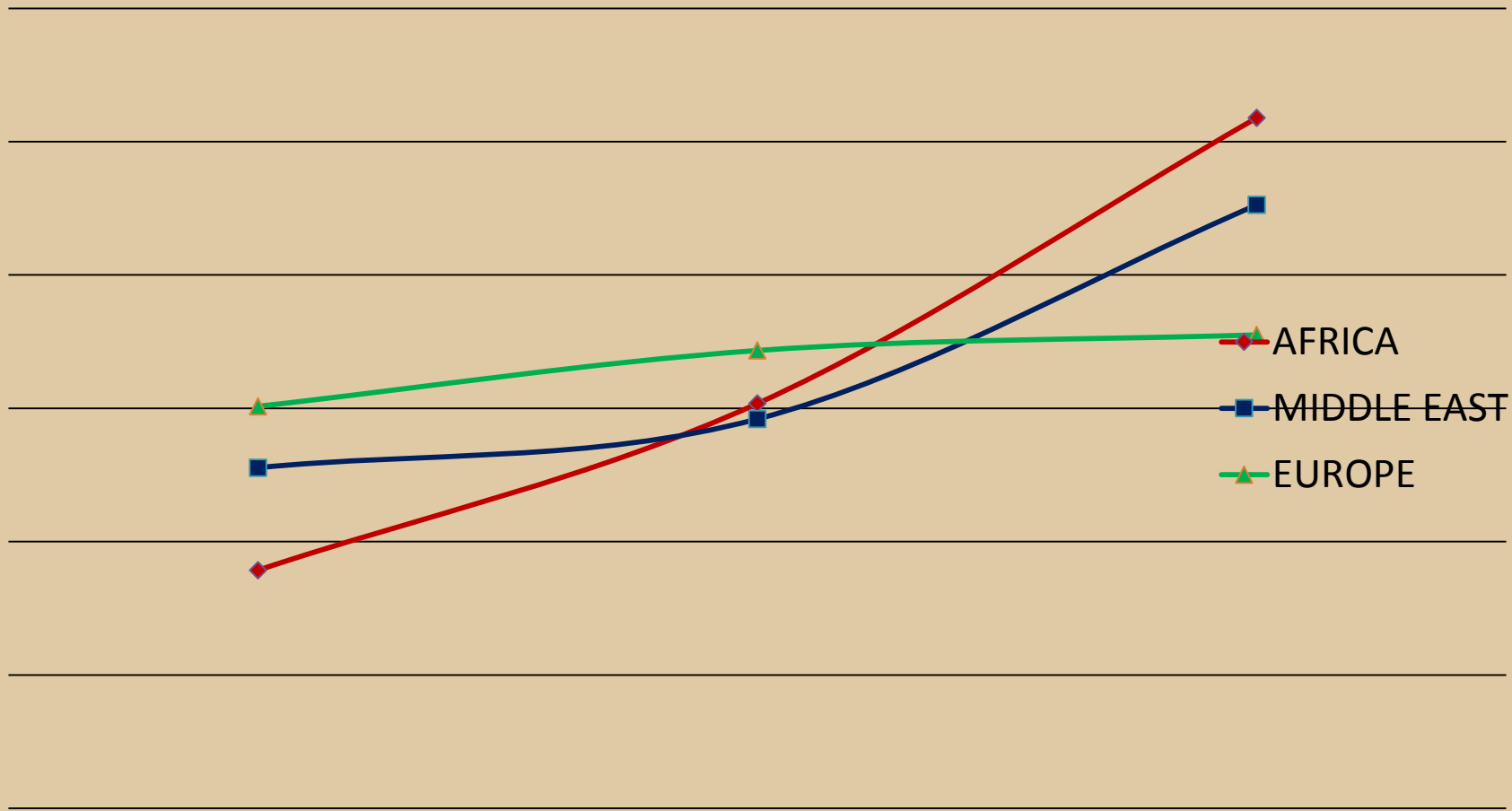
## Malignant neoplasms





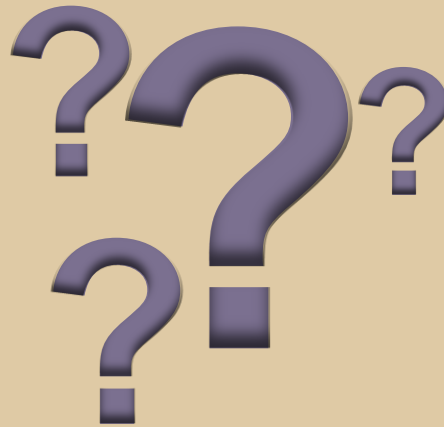
# Projected deaths (%) by cause in WHO Regions

## Malignant neoplasms



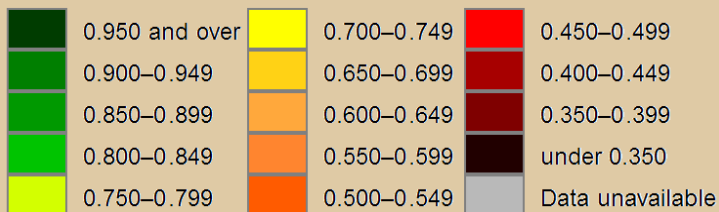
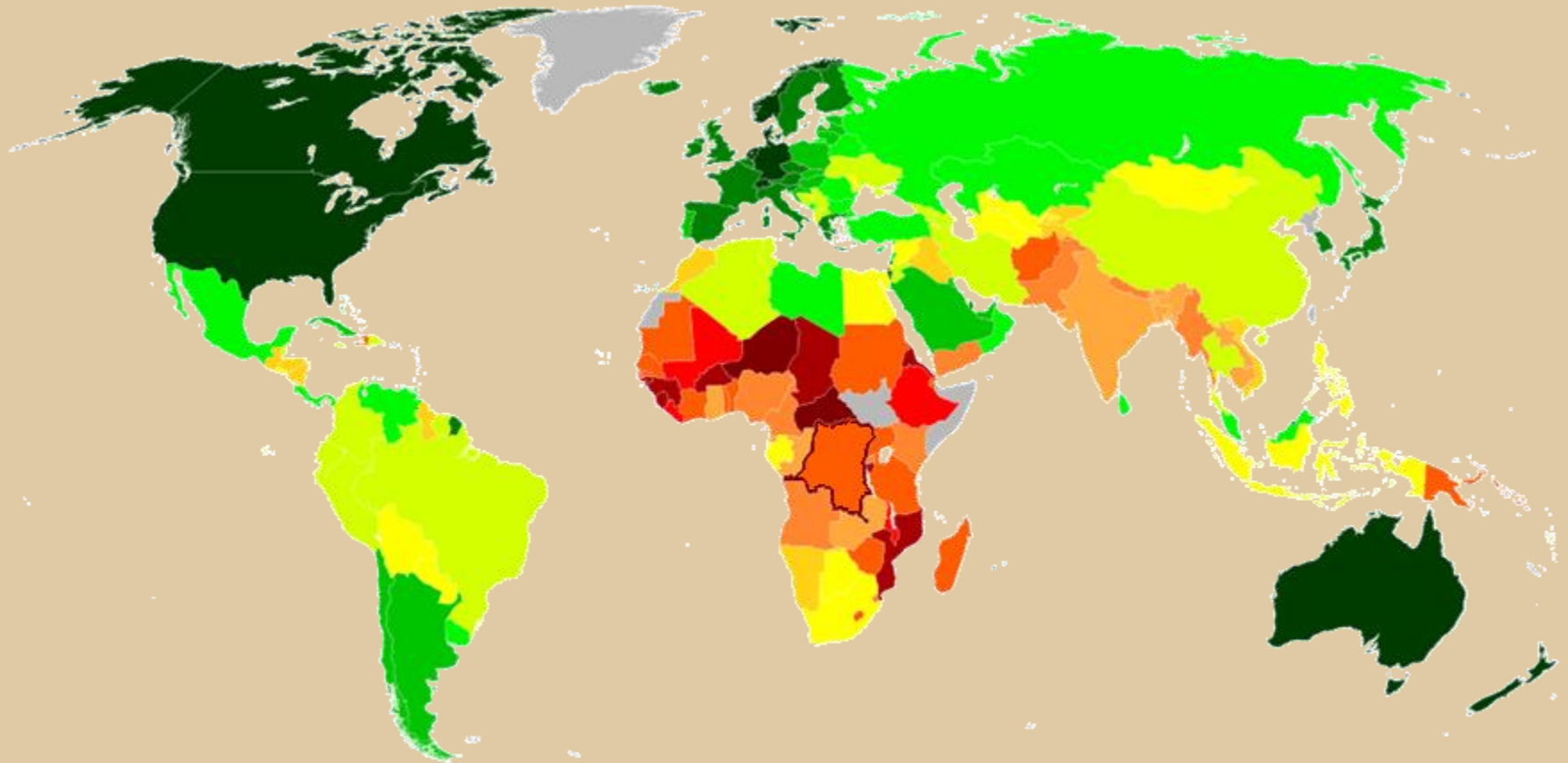
# Pathology Services in Developing Countries

## WHERE



**which country?**

# Human development index



Human Development  
Report 2014

Sustaining Human Progress:  
Reducing Vulnerabilities and Building Resilience



**which hospital?**

# Definitions and Terms for Different Levels of Hospital

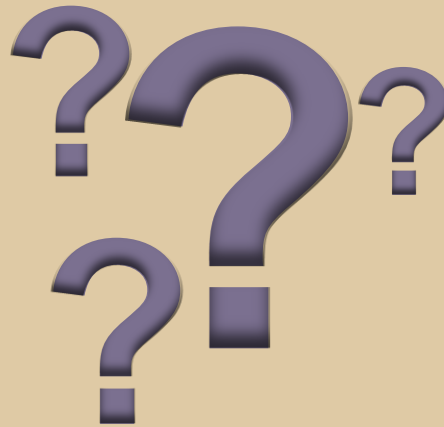
- ***Primary-level hospital:*** few specialties—mainly internal medicine, obstetrics and gynecology, pediatrics, and general surgery, or just general practice; limited laboratory services available for general but not specialized pathological analysis
- ***Secondary-level hospital:*** highly differentiated by function with 5 to 10 clinical specialties; size ranges from 200 to 800 beds; often referred to as a *provincial hospital*
- ***Tertiary-level hospital:*** highly specialized staff and technical equipment — for example, cardiology, intensive care unit, and specialized imaging units; clinical services highly differentiated by function; could have teaching activities; size ranges from 300 to 1,500 beds

# Hospital's minimum requirements

- **General surgery**
- **Gynecology**
- **Outpatient clinic**
- **(Oncology)**

# Pathology Services in Developing Countries

## HOW



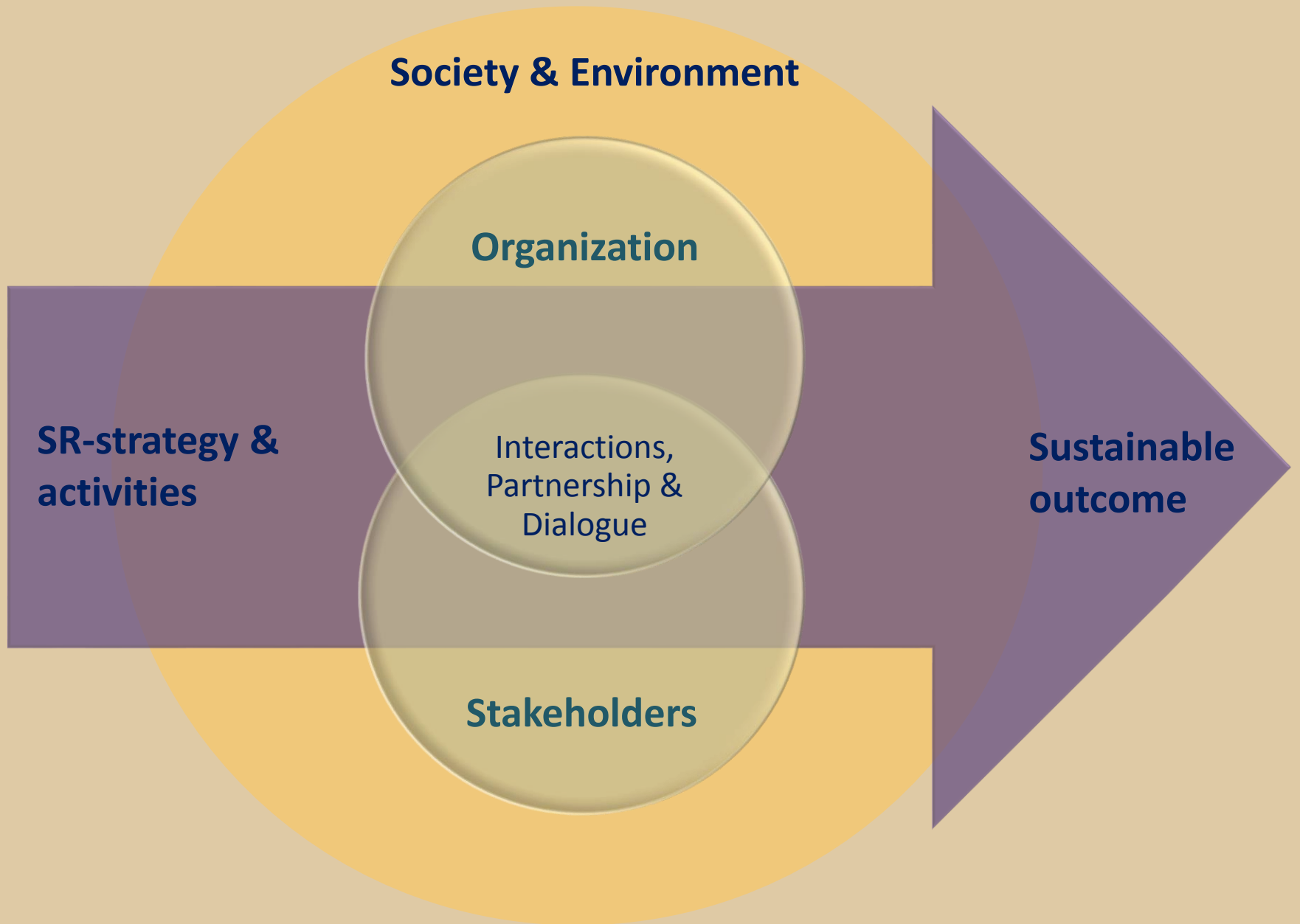


## **Needing to address three important challenges:**

- **Infrastructure and equipment**
- **Service delivery by the laboratories.**
- **Human resources**

**These three issues are all influenced by political, socio-economic and cultural factors.**

**Social responsibility  
for strategy, activities and outcomes**



# INFRASTRUCTURE AND EQUIPMENT

- **Building and/or renewing lab infrastructure**
  - **Safety (fume hoods, AC, etc)**
  - **Electricity supply (UPS)**
  - **Water supply**
- **Equipment compatible with local technologies**
  - **Maintenance program**
  - **Spare parts availability**

# PROVISION OF LABORATORY SERVICES

- **Defining main process and related procedures**
  - **Informatic system**
    - **Patient / specimen registration**
    - **Reporting**
    - **Report validation and delivery**
  - **Lab procedures**
- **Defining standard requirements**
  - **TAT**
  - **Diagnostic check lists**
- **Quality controls**

# HUMAN RESOURCES

- **Three different settings:**
  - 1. Senior pathologist(s) present; lab not working or working with serious lack of resources**
  - 2. No senior pathologist present; only junior or on-training pathologist(s) available**
  - 3. No pathologist present; only lab technicians available**

# Setting 1

(Senior pathologist(s) present)

- Program of technical assistance for :
  - Training (on job): pathologist(s) and technicians
  - Standardization
    - procedures/protocols
    - diagnostic check lists
    - quality controls (telepathology)
- Supporting growth
  - New techniques (FNA, Immunohistochemistry)
  - Participation to national programs (i.e. screening)

# Setting 2

(only junior or on-training pathologist(s) present)

- Program of technical assistance for :
  - **Continuous on-site diagnostic activity and training on job: pathologist(s) and technicians**
- **Standardization**
  - Procedures/protocols
  - diagnostic check lists
  - quality controls (telepathology)
- **Supporting growth**
  - **Supporting the achievement of qualification and academic knowledge: pathologist(s) and technicians**
  - New techniques (FNA, Immunohistochemistry)
  - Participation to national programs (i.e. screening)

# Setting 3

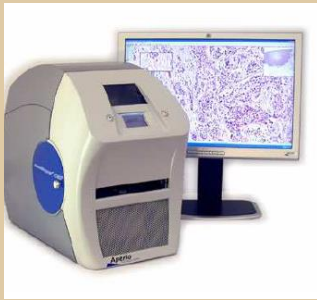
(only lab technicians present)

- **Program of technical assistance for :**
  - **Training (on job) – technicians**
    - Standard histo- cytology lab
    - Gross examination and sampling
  - **Telediagnosis (scanner + via-satellite internet)**
  - **Standardization**
    - procedures/protocols
    - diagnostic check lists
- **Supporting growth**
  - **Supporting the achievement of qualification and academic knowledge: technicians**
- **Critical issues**
  - **High cost of connection**
  - **Difficulties of sustaining continuous assistance for telediagnosis**

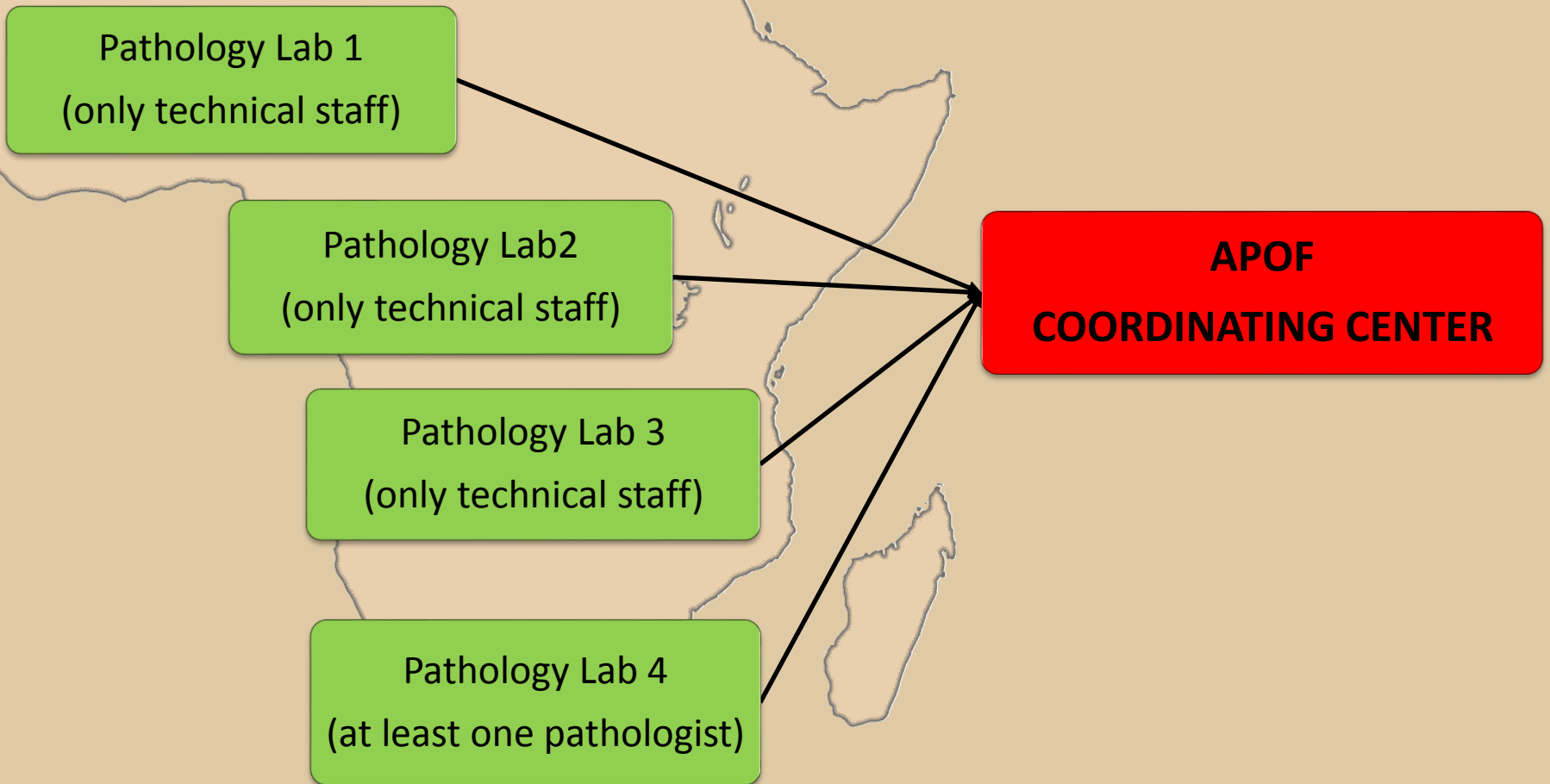




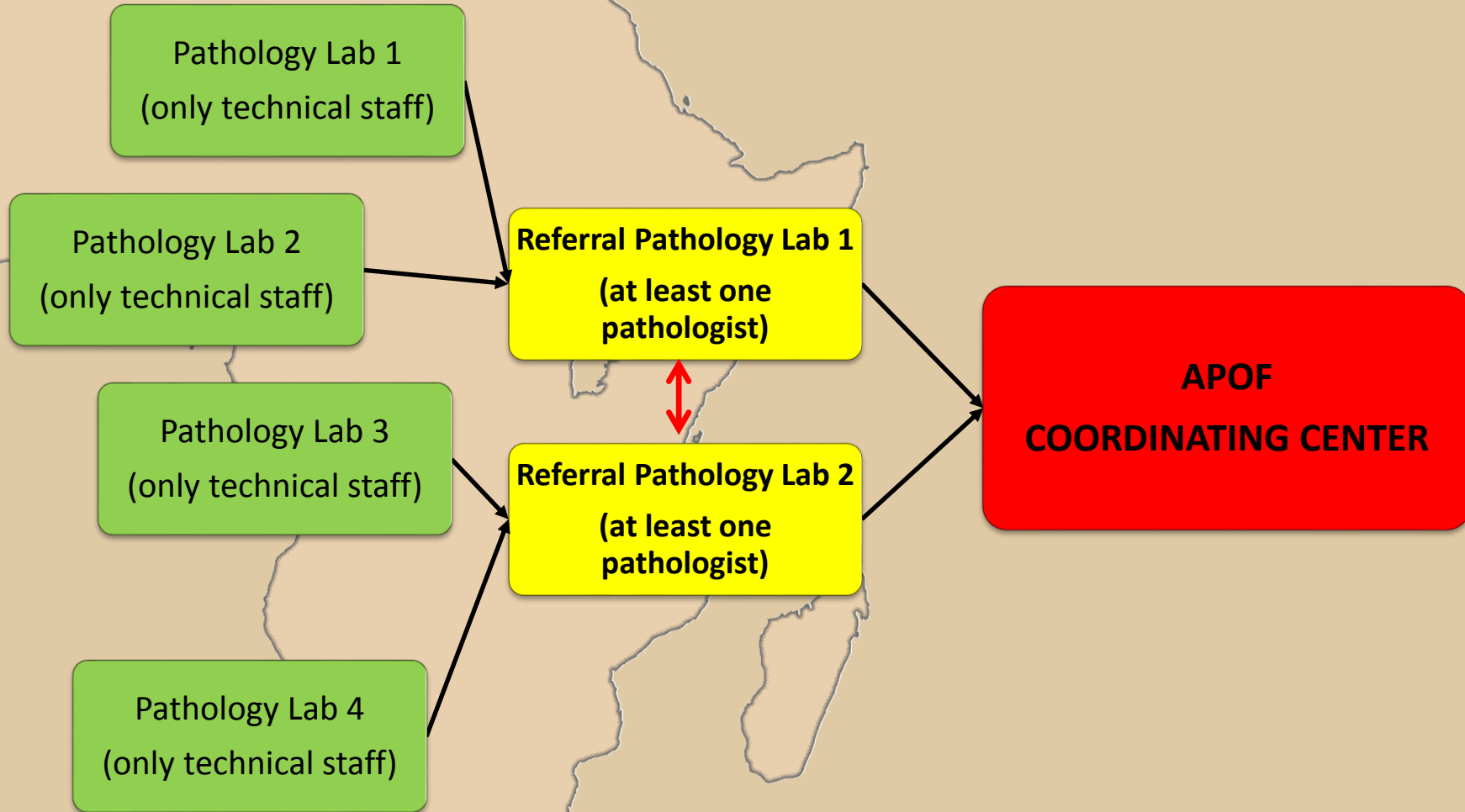
Telepathology

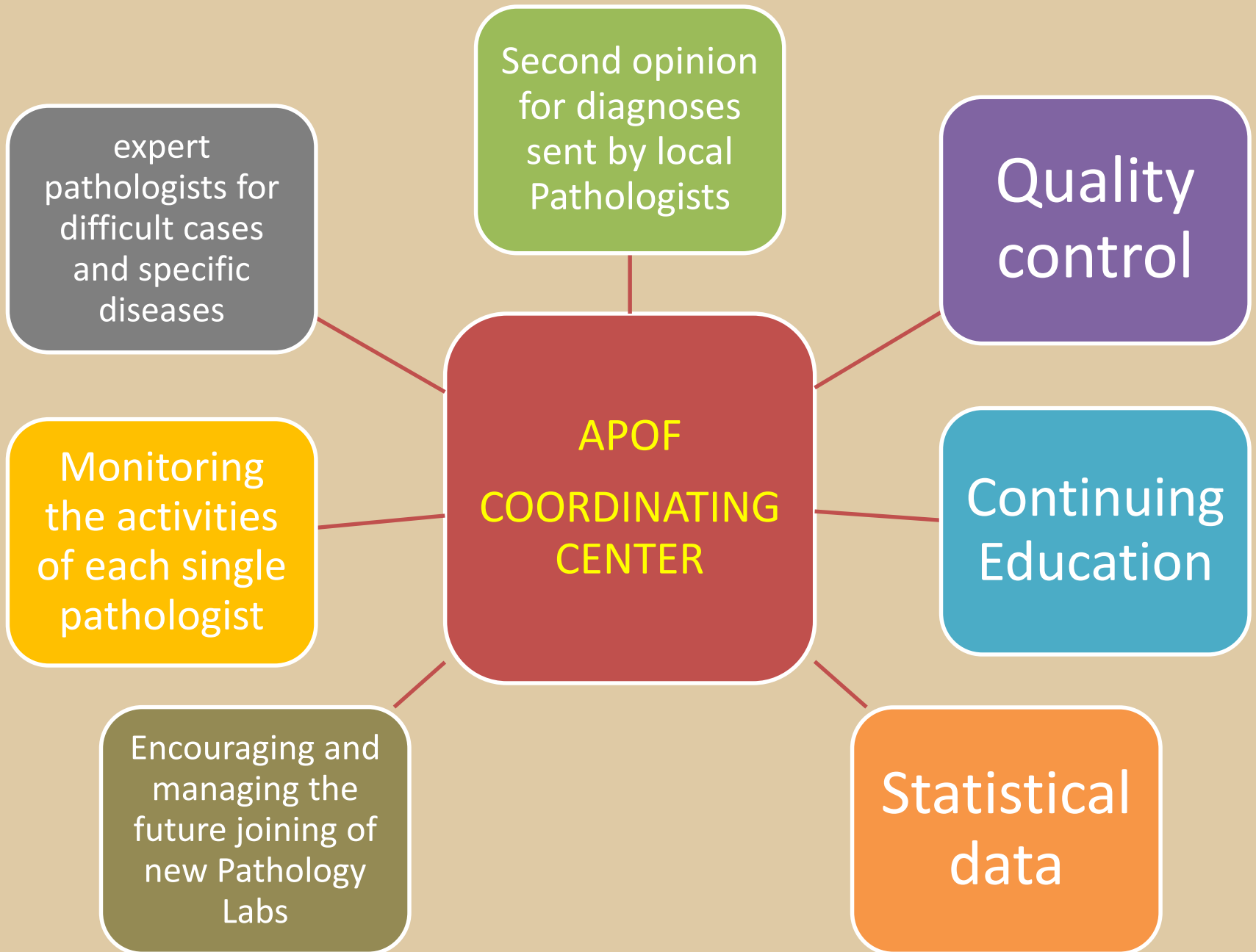


# Organization of the network of pathology labs



# An hypothesis for the organization of the network of pathology labs





# Some examples





# Bugando Medical Centre Mwanza - Tanzania





**Secretary's Room**  
**Reception**







**Fine Needle Aspiration Room**





# Laboratory

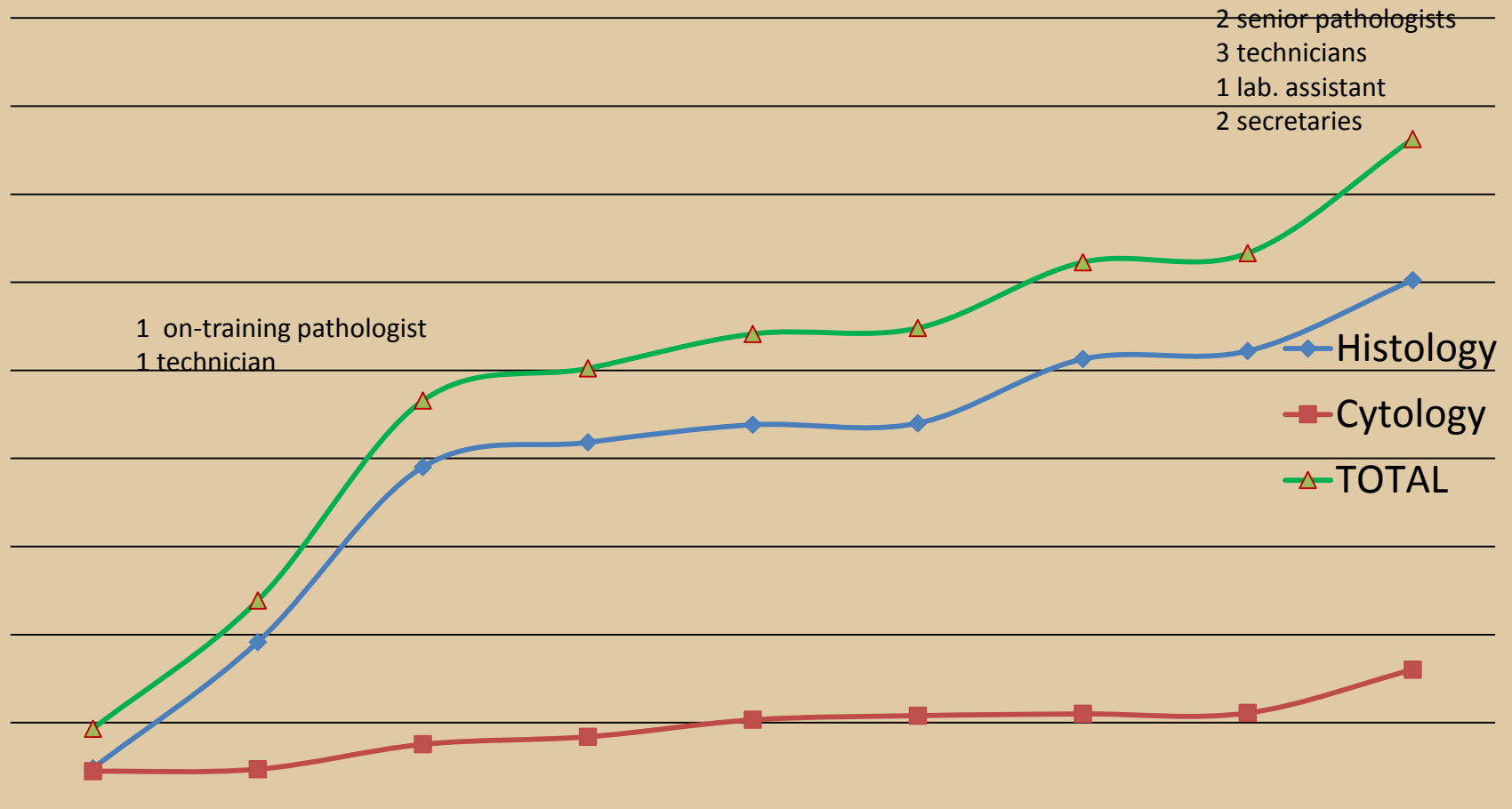




**Pathologist's Room**

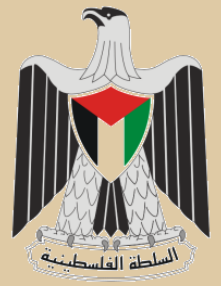


# BMC – Histopathology Dept. Diagnostic activity 1999-2007



# السلطة الوطنية الفلسطينية - المستشفى بيت جالا

Palestinian National Authority - Beit Jala Governmental Hospital







## Laboratory





# Laboratory





**Fine Needle Aspiration Room**





**Pathologist's Room**





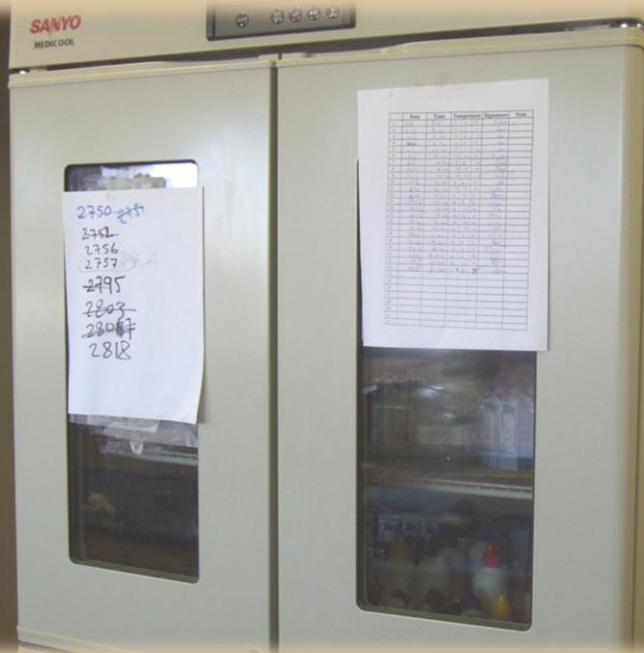


## HISTOPATHOLOGY PROCEDURES HANDBOOK

### SAMPLES FULFILMENT

Histological and cytological samples are obtained by the medical wards' staff, put in fixative solutions and, when possible, immediatly sent to the histopathology lab

## Quality Controls



|    | Date | Time  | Tempreture | Signature   | Note |
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## Laboratory

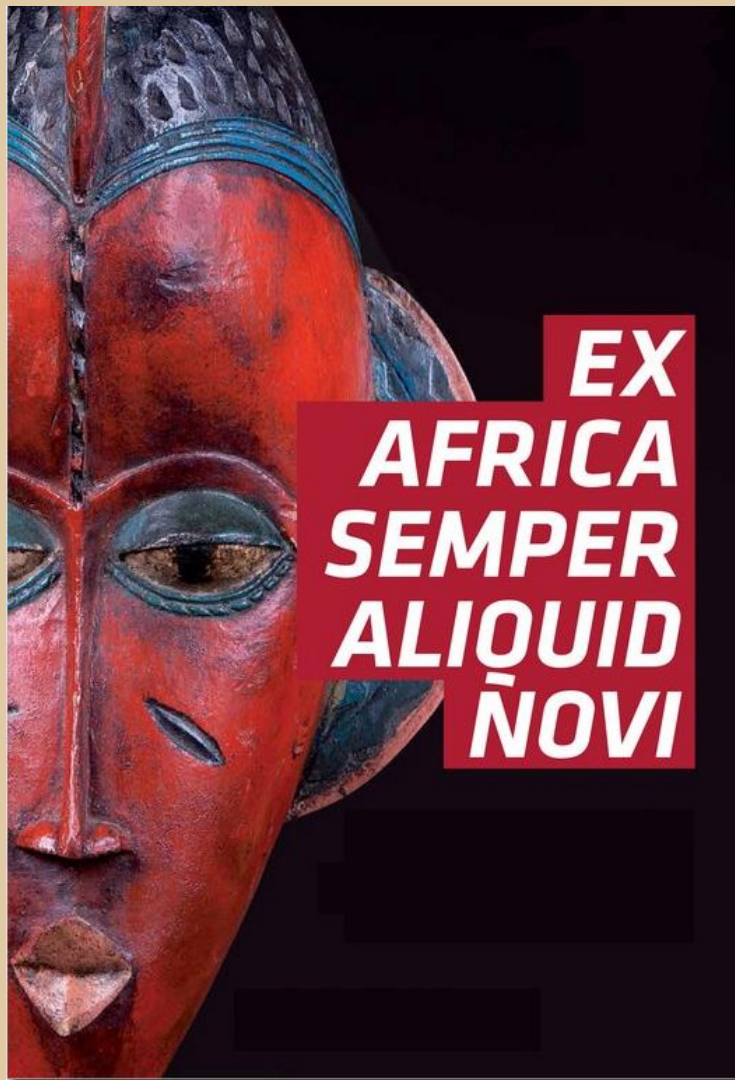






**Tele-pathology**





**(Always something new from Africa)**

Pliny the Elder, "Historia Naturalis"

[www.apof.eu](http://www.apof.eu)



A cow in Japan is worth 9 dollars a day.

This means that a Japanese cow would be a middle class Kenyan... and could very well head a humanitarian NGO.



*Binyavanga Wainaina* (1971)  
Kenyan author, journalist and winner of the Caine Prize



# Human Development Index

The **Human Development Index (HDI)** is a composite statistic used to rank countries by level of "human development" and separate "very high human development", "high human development", "medium human development", and "low human development" countries. The statistic is composed from data on

- **life expectancy,**
- **education** and
- **per-capita GNI** (as an indicator of **standard of living** or income) collected at the national level using the formula given in the Methodology section below. There are also HDI for states, cities, villages, etc. by local organizations or companies.



# Calculating the HDI

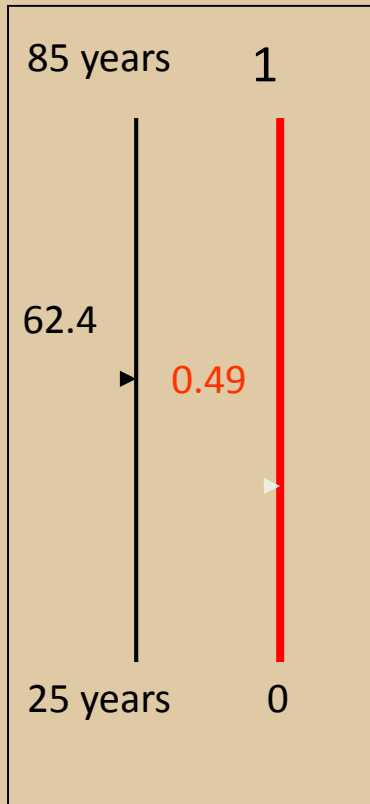
| Indicator       | Minimum                | Maximum                   |
|-----------------|------------------------|---------------------------|
| Life expectancy | $\leq 25$ years        | $\geq 85$ years           |
| Adult literacy  | 0%                     | 100%                      |
| Gross enrolment | 0%                     | 100%                      |
| GDP per capita  | $\leq 100$ (PPP* US\$) | $\geq 40,000$ (PPP* US\$) |

\*PPP: purchasing power parity

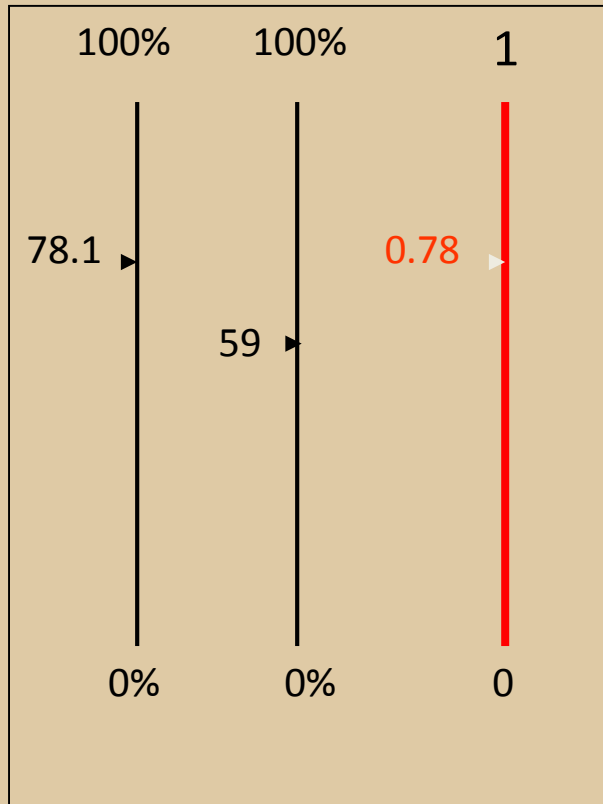


# Calculating the HDI\*

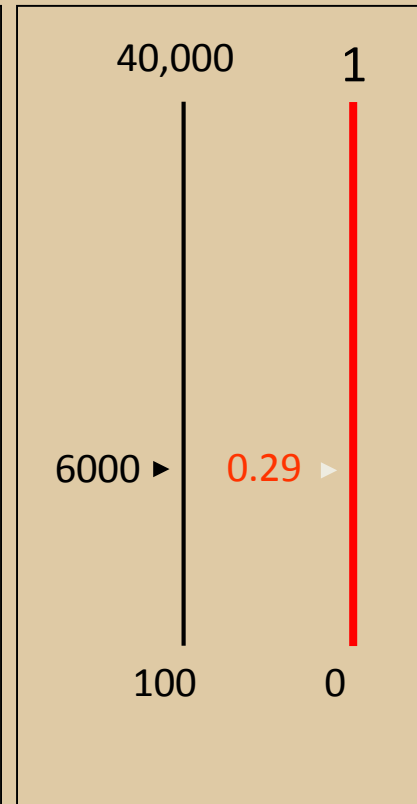
Life expectancy index



Education index  
Literacy (2/3) Enrolment (1/3)



Income index



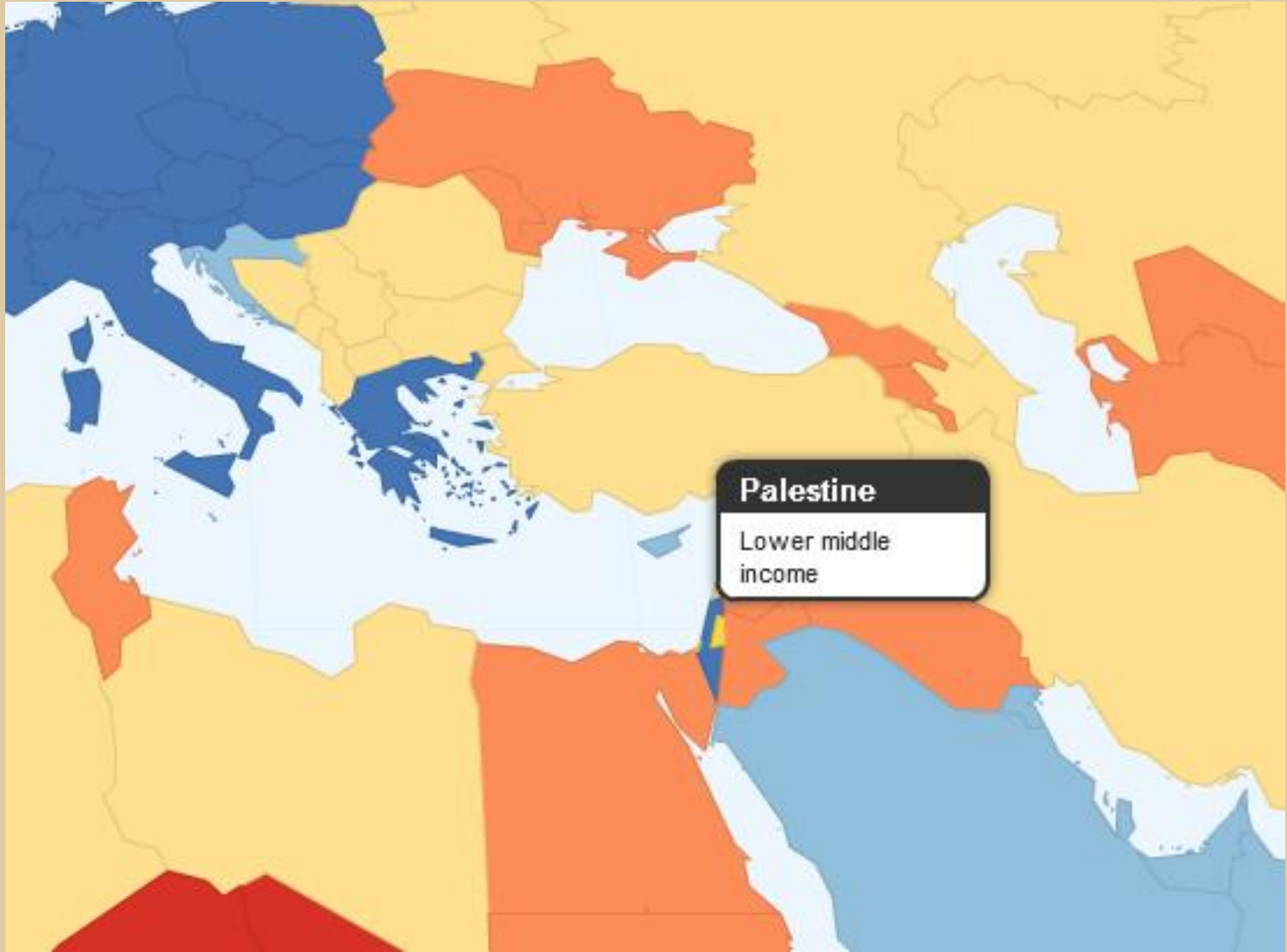
HDI



$$\frac{0.49 + 0.78 + 0.29}{3} = 0.52$$

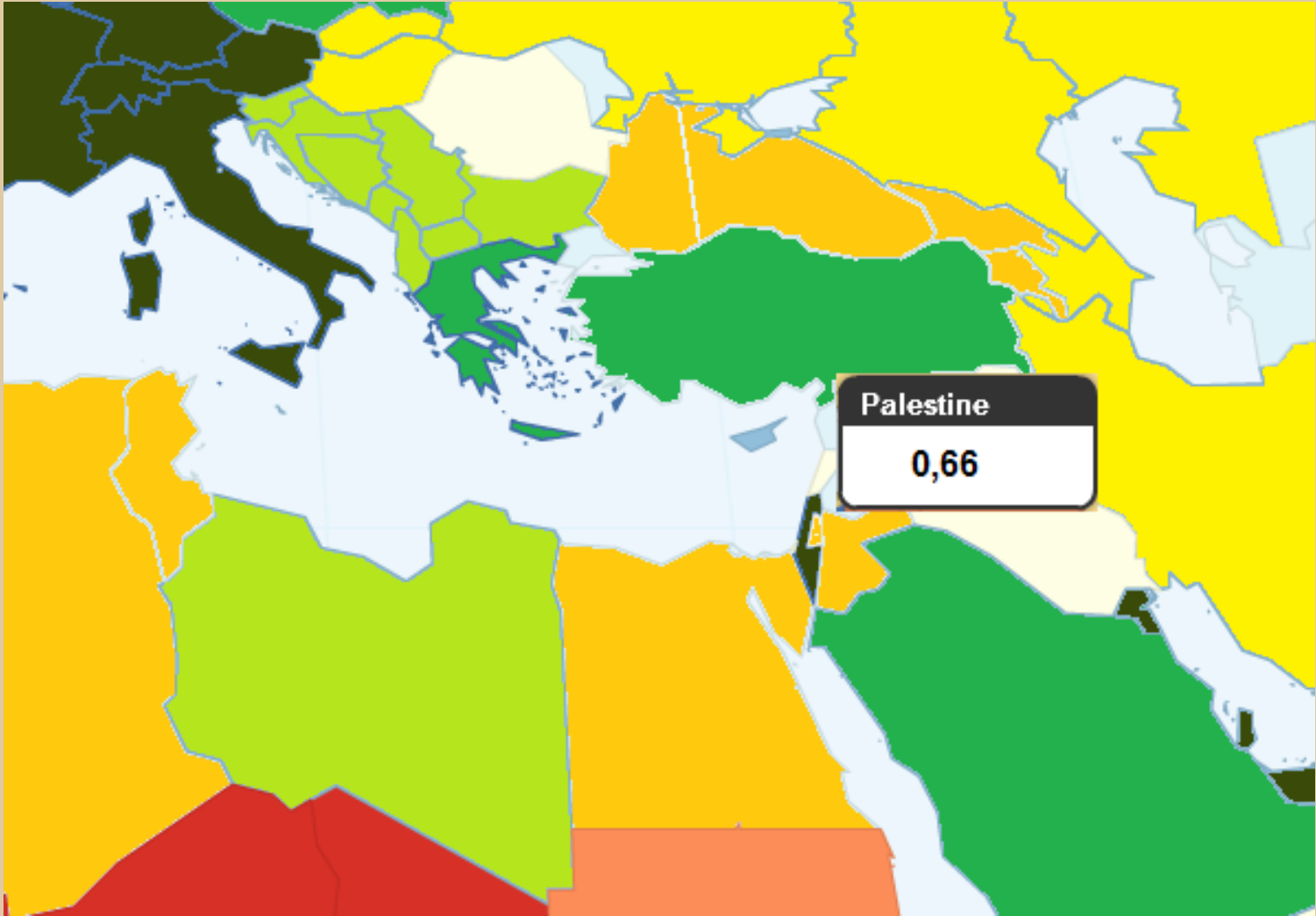
(\*Zambia, yr. 2013)



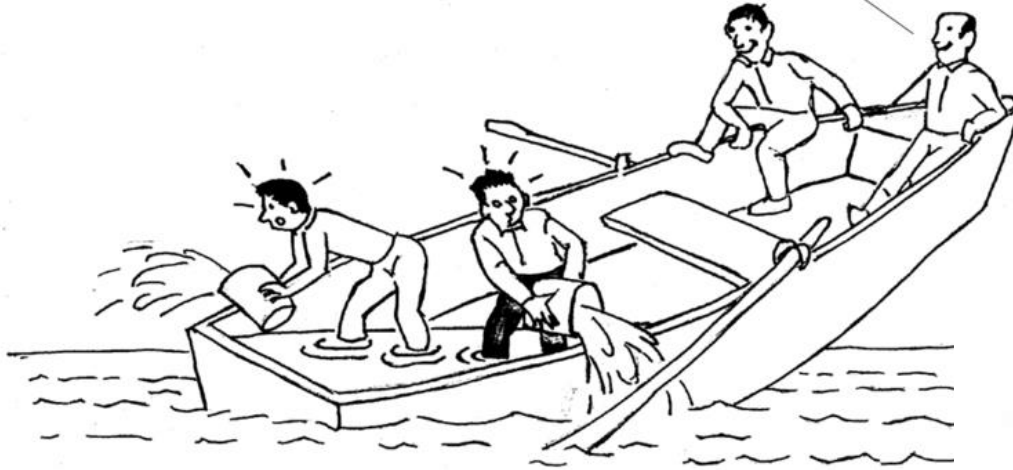


**Palestine**  
Lower middle  
income





Sure glad the hole isn't at our end.



"Just sign here, sir - it clears me of any responsibility."



# Infrastructure and equipment challenges

- **Lack of basic equipment**
- **Lack of consumables**
- **Lack of or erratic supply of pipe borne water**
- **Lack of or erratic supply of electricity**

# Challenges related to the provision of laboratory services

- Non-availability of laboratory testing
- Client/patient dissatisfaction
- Turnaround time not usually defined
- Absence of good quality assurance
- Sample collection and transportation
- Cost of laboratory testing
- Delivery of result
- Patients' attitude to testing
- Physicians' attitude and behavior

# Human resource challenges

- Limited number of skilled personnel
- Lack or inadequate training program
- Lack or inadequate training facilities
- Trainees who go abroad do not return
- Trainees who return lack facilities to apply what they learnt
- Poor pay = no job satisfaction