

# SMART Centres

## Climate Adaptation and Youth Engagement



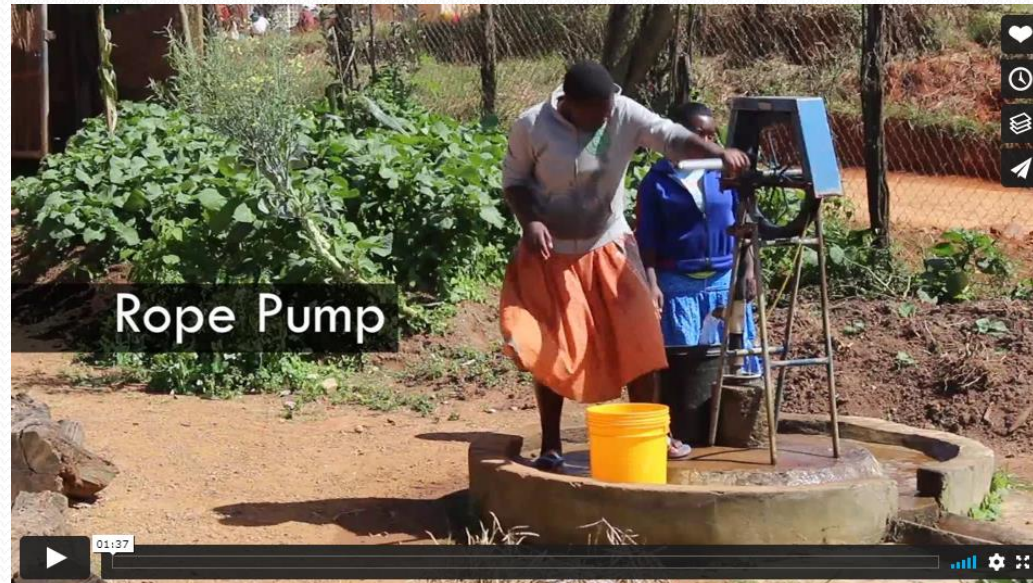
Climate Adaptation Summit  
Youth in Agriculture pre-event

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- Clip: Introduction of SMART Centre concept
- <https://vimeo.com/247792592>



# The Context – Rural & Peri-urban WASH

- 70% of the SDG6 target group, ‘the last mile’, in rural areas
- Dispersed, small communities
- Investment borehole/pump depend on donations
- Well drilling rigs/Pumps are imported
- Community management → low ownership
- 35% of communal water systems not functioning
- Potential of Self-supply, household wells overlooked



# The Challenge

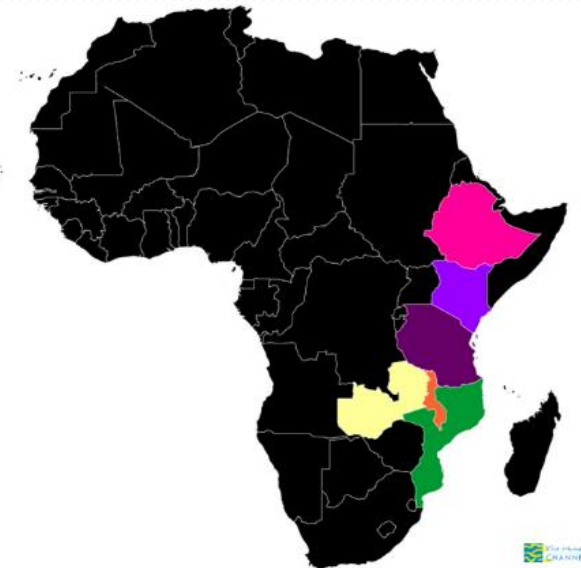
1. **To Reach SDG6.1** in remote, small rural communities where machine drilled wells, imported pumps are too expensive.
2. **To Reach water related SDGs** like SDG1 (Poverty), SDG2 (Food) and SDG8 (Employment)



# A solution; The SMART approach

## Innovation in technology & methods

- Dissemination via SMART Centres which are trainings centres for Water & Sanitation
- Training of local artisans & companies
- Active in Tanzania, Malawi, Zambia, Mozambique
- Starting in Ethiopia, Kenya, South Sudan, Niger, Ghana, Nicaragua



**S**imple  
**M**arket based  
**A**ffordable  
**R**epairable  
**T**echnologies

**L**ocal production  
**P**rofit based  
sustainability



# Examples innovative technologies (SMARTechs)

- **Manual well drilling;** Rotary jetting, SHIPO, EMAS, Mzuzu  
Wells to 60 m cost \$100-1500 depending on geology, Casing etc.
- **Local produced handpumps;** EMAS, Rope pump  
Can pump from 40 m deep, Cost \$40-120
- **Groundwater tube recharge,** avoid dry wells  
Cost \$10 in materials. Store 100-500m<sup>3</sup>/yr
- **Household water filters,** locally assembled  
Cost \$20-30
- **Corbelled, Satopan Latrines.** Cost \$5-15



# Examples innovative methods

- **Family Based Management**, (family ownership, pump at or near premises)
- **Self-supply**, (families co-invest themselves)
- **Well clubs**, (after training families drill themselves, EMAS or Mzuzu drill)
- **Faith & water**, (trained faith leaders train communities)





# Impact of the SMART approach

- **Reach SDG6, the last mile,**

SMARTechs can be used in areas where other options are not possible, too expensive  
Over 2 million reached with SMARTechs

- **High pump functionality.**

Local production = spares available & affordable. Family Based Management = ownership

- **Profit based sustainability**

Local companies sell products so go on when projects stop. 50+ companies active  
Families will maintain pumps if they generate income

- **Reach SDG 1, 2 and 8**

SMARTechs also affordable for families  
Garden irrigation life stock = food security & increased income.  
Well drilling, pump production, irrigation = employment



# Water ladder for households



IAAS World



# Actions SMART Centres (1)

## Promote HWTS

- Cheapest option for safe water at Point of Use.
- Focus on household filters
- Good filters cost \$20-40 so safe water at \$2/prs./yr.
- Challenges; Awareness, build supply chains, payment options



# Actions SMART Centres (2)

**Building supply chains of SMARTechs by:**

**Focus on 3 Ts; Training, Training, Training**

**Building local capacity of;**

- **Technicians** in well drilling, production and repair of drill sets, hand pumps,..
- **Entrepreneurs** in marketing, business skills



# Actions SMART Centres (3)

## Scale Self-supply, Household wells

### Effects:

- **Increased hygiene.** More use of water
- **Time saving for women/girls**, and more safety
- **Increased income**, \$100-500/family/yr.
- **More food security.** Water for life stock, irrigation
- **Family owned = Community served.**

A family shares water with an average of 50 other people.

See [www.zambiasmartcentre.com](http://www.zambiasmartcentre.com)



# Action SMART Centres (4) Covid-19 response

- Handwashstation made by local welder  
→ Employment
- Liquid Soap made from soap bars  
→ Employment and locally available
- Refill during 3 months
- Marketing for local businesses



# Build Climate resilience?... Store rainwater

Increase awareness on aquifers and the need to restore them

Apply 3R. (Recharge, Retention, Reuse)

Store rainwater to use it in the dry season with options like:

- Tube recharge; can avoid wells drying up
- Rainwater storage; Emas Underground tanks, Wire brick cement tanks, ..
- 3R. (Recharge, Retention, Reuse)

Effect of increasing access to water

- Water for health and.. Productive uses, livestock, food
- Healthier local economy → more resilient to climate shocks

Two cases of farmers from Zambia, with clip

- Sharing water with the community, Tube recharge. Irrigation



# James Mbewe

- Farmer James Mbewe
- <https://www.youtube.com/watch?v=LRx4S19GySM>



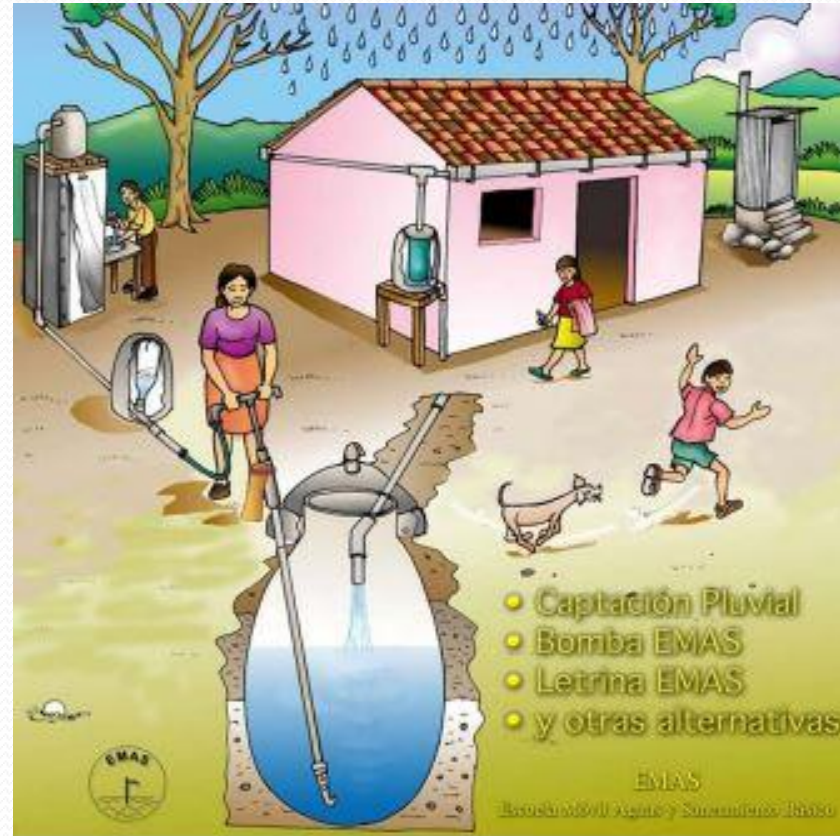


# Rainwater storage. Technologies (1)

Wire-brick cement tank,



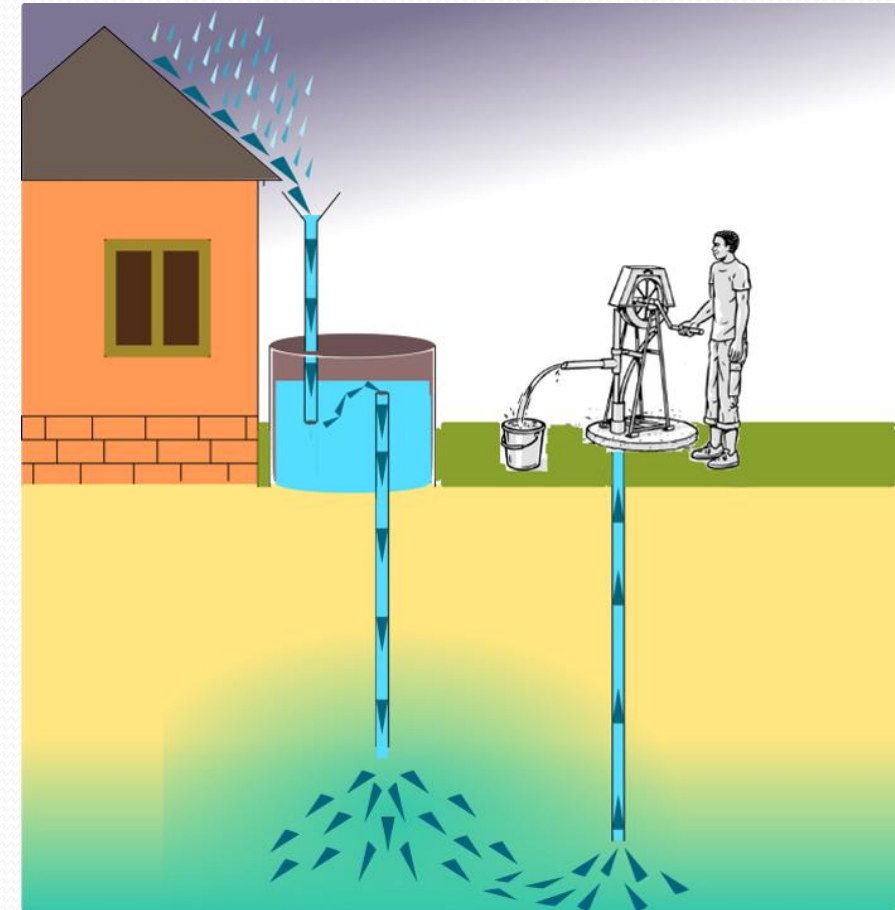
EMAS underground tank

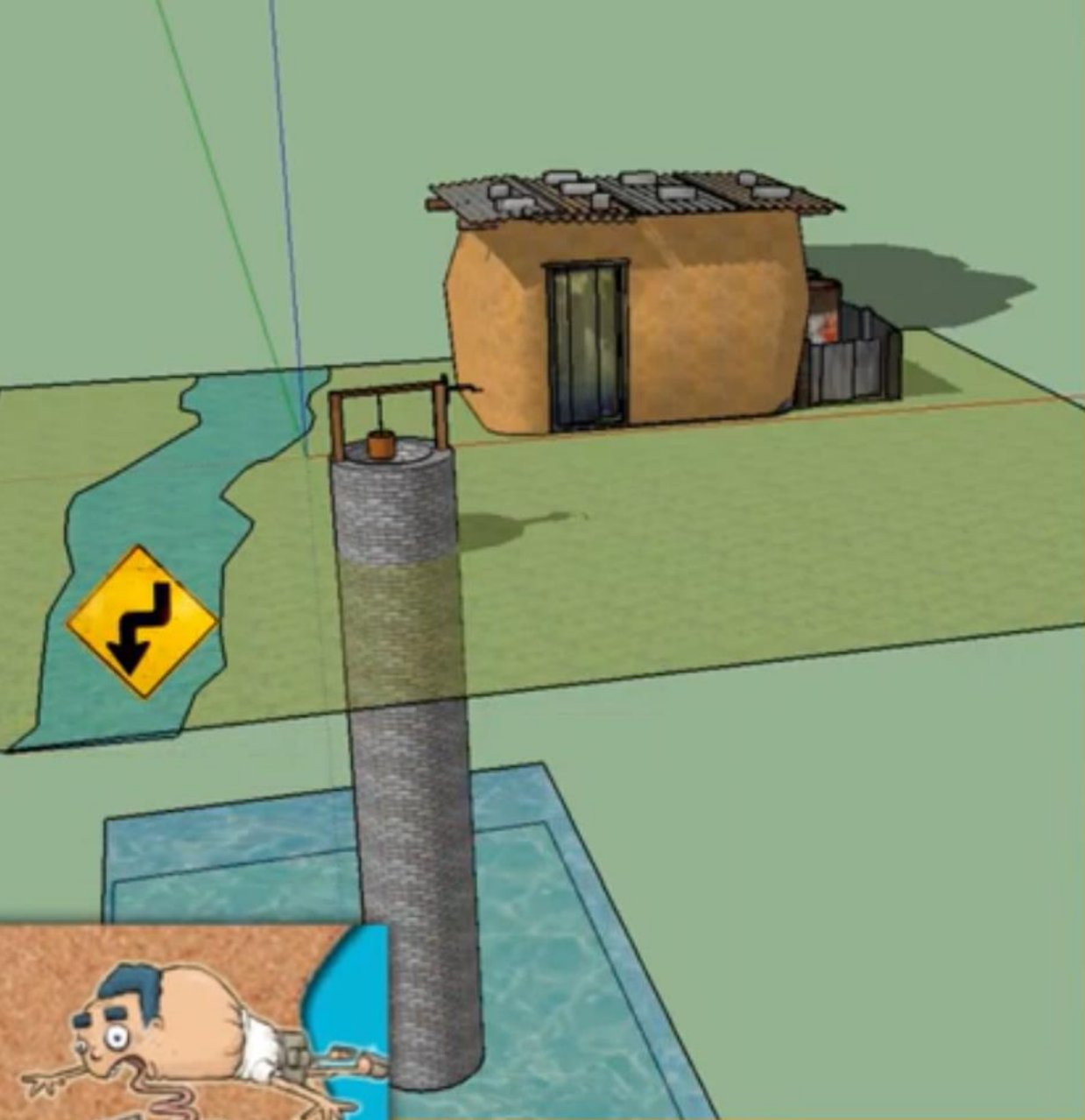


# Rainwater storage. Technologies (2)

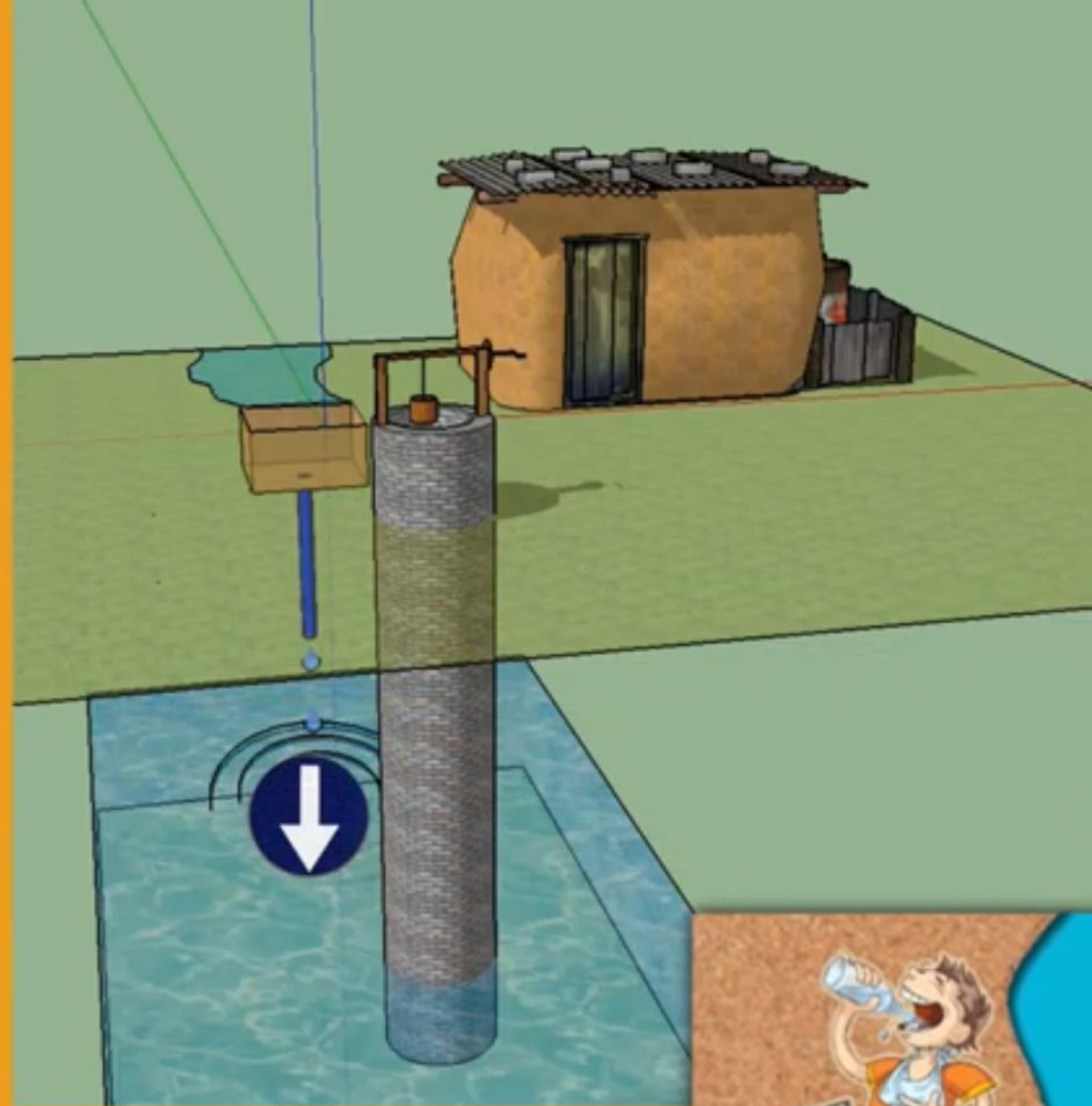
## Tube recharge

- Storing rainwater in the ground  
100-500 m<sup>3</sup>/ yr. Cost materials \$10





Run-off 2 sea



Recharge 2 ground

# Rainwater storage. Technologies (3)

Just DiggIt

[https://www.youtube.com/watch?v=QieEdau\\_r3M](https://www.youtube.com/watch?v=QieEdau_r3M)

Spate Irrigation

<https://metameta.nl/resources/modernization-of-spate-irrigation>

Green Roads for Water

<https://metameta.nl/the-work-we-do/green-roads-for-water>

Sponge Cities

<https://metameta.nl/resources/how-to-create-a-sponge-town>



# Youth Employment

Huge potential for employment/work in water and sanitation

Many millions without safe water, sanitation

Type of employment;

- Vocational jobs (well drillers, pump producers, repairs, design..)
- Entrepreneurs; (water kiosk, sales of WASH products, services..)
- Agriculture/productive uses. (lifestock, fish, irrigation, ..)



# Evans Banda

- Farmer Evans Banda
- <https://www.youtube.com/watch?v=nLnfUYaB6IE>



# Current gap → local capacity

Focus on 3 Ts; **Training, Training, Training**

Building local capacity of;

- **Technicians** in well drilling, production and repair of drill sets, hand pumps, piped systems, management, payment systems, sanitation, latrines,...
- **Entrepreneurs** in marketing, business skills
- **Farmers** in soil conservation, rainwater harvesting, improved seeds,.....



# Opportunities for you?

- Study the SMART approach and technologies
- Ask NGOs, (Local) government in your own area to start training in affordable WASH technologies like SMARTechs
- Try out technologies like Tube recharge, Mzuzu drill in your own area, garden?
- Research / internship opportunities maybe at a SMART Centre, via MetaMeta

## Possible Topics:

- Effect of the SMART Approach on Rural Development
- Functionality of SMARTechs
- Building websites for member SMART Centres
- Etc.





# Thank you



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Check: [www.smartcentregroup.com](http://www.smartcentregroup.com) for:

- Manuals
- Papers/presentations
- Activities and Monitoring results
- Info on SMART Centres in 10 countries

