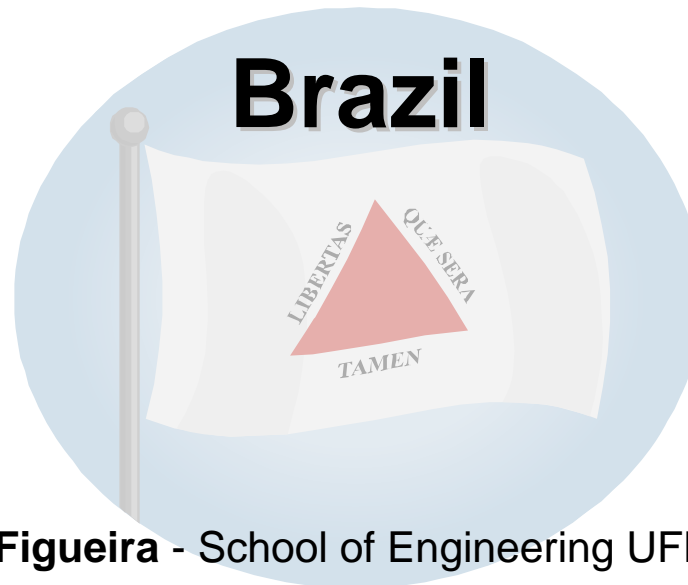


Implementation and Maintenance Costs for a Telehealth System in



Brazil

R.M.Figueira - School of Engineering UFMG,

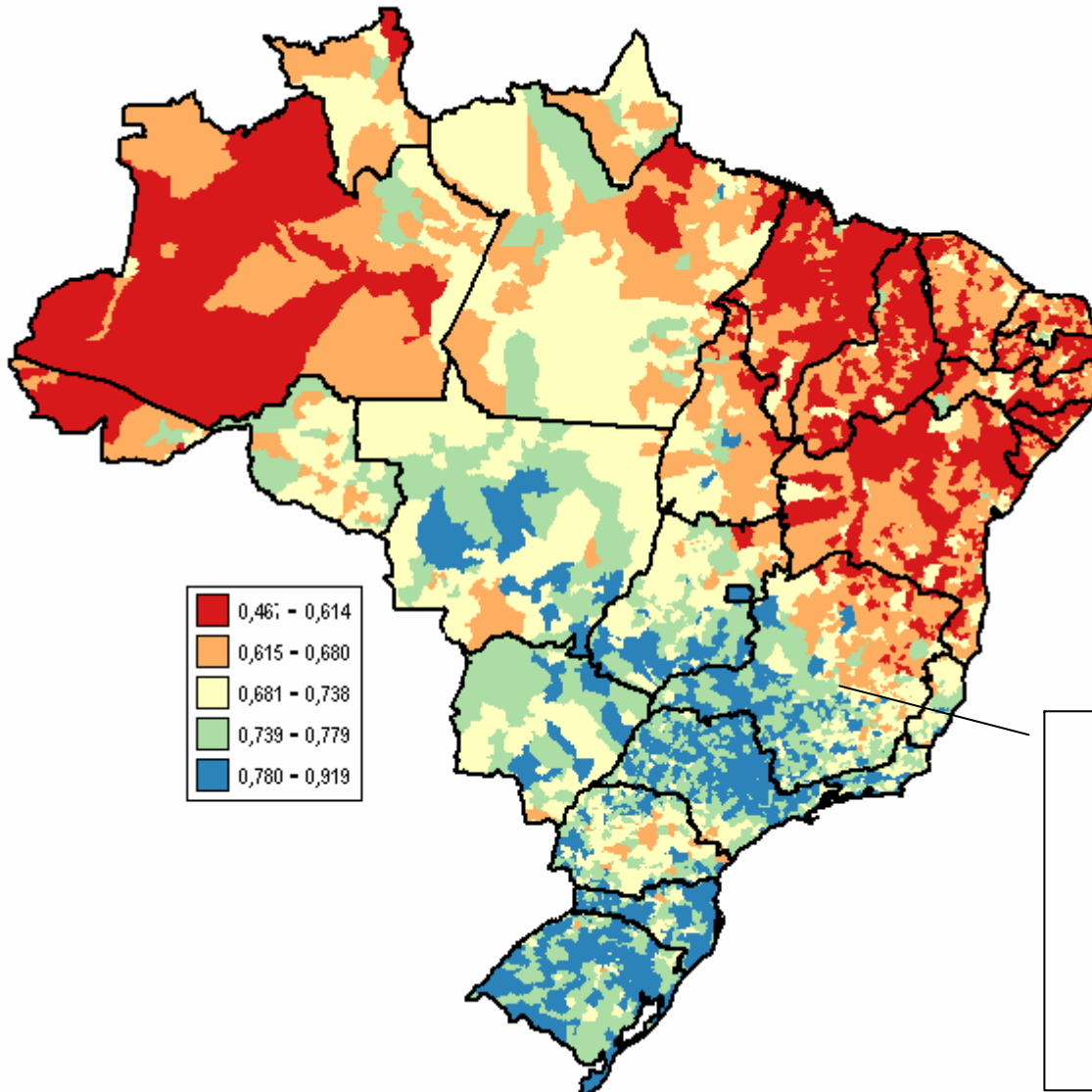
M.B.M.Alkmim, A.L.P.Ribeiro, M.Pena - Telehealth Center, HC University Hospital UFMG

F.E.Campos - SGTES, Ministry of Health, Brazil

MedeTel 2008

Luxembourg, April 2008

HDI Distribution in Brazil



State of Minas Gerais:
586.528 km²,
19 M inhabitants ,
853 cities
60% with less than 10,000
inhabitants

Telehealth Initiatives in Minas Gerais at the HC University Hospital UFMG

June 2006: *Minas Telecardio Project*, implemented in 82 remote and isolated villages in the state, supported by the State Department of Health of Minas Gerais

August 2007: starts *National Telehealth Project* implementation in 100 villages in the state (900 in the country), supported by the Ministry of Health through its Office of Labor and Education Management in the Health System (SGTES),

In remote villages, outside village treatment due to lack of specialists is a common problem.

One of the objectives of using ICT technologies in such situations is to reduce the number of patients sent outside village, making the treatment more comfortable.

However financial aspects must be considered!

Restriction: financial resource in Brazil, as a developing country, is highly demanded and consequently its application must highly be optimized.

Consequence: after sometime, any initiative must be financially self-supported

Questions:

1. What is the cost to maintain a telehealth system?
2. What is the cost for each patient sent for outside village treatment?
3. How many outside treatment cases is the telehealth system able to reduce?
4. Is the system financially sustainable?

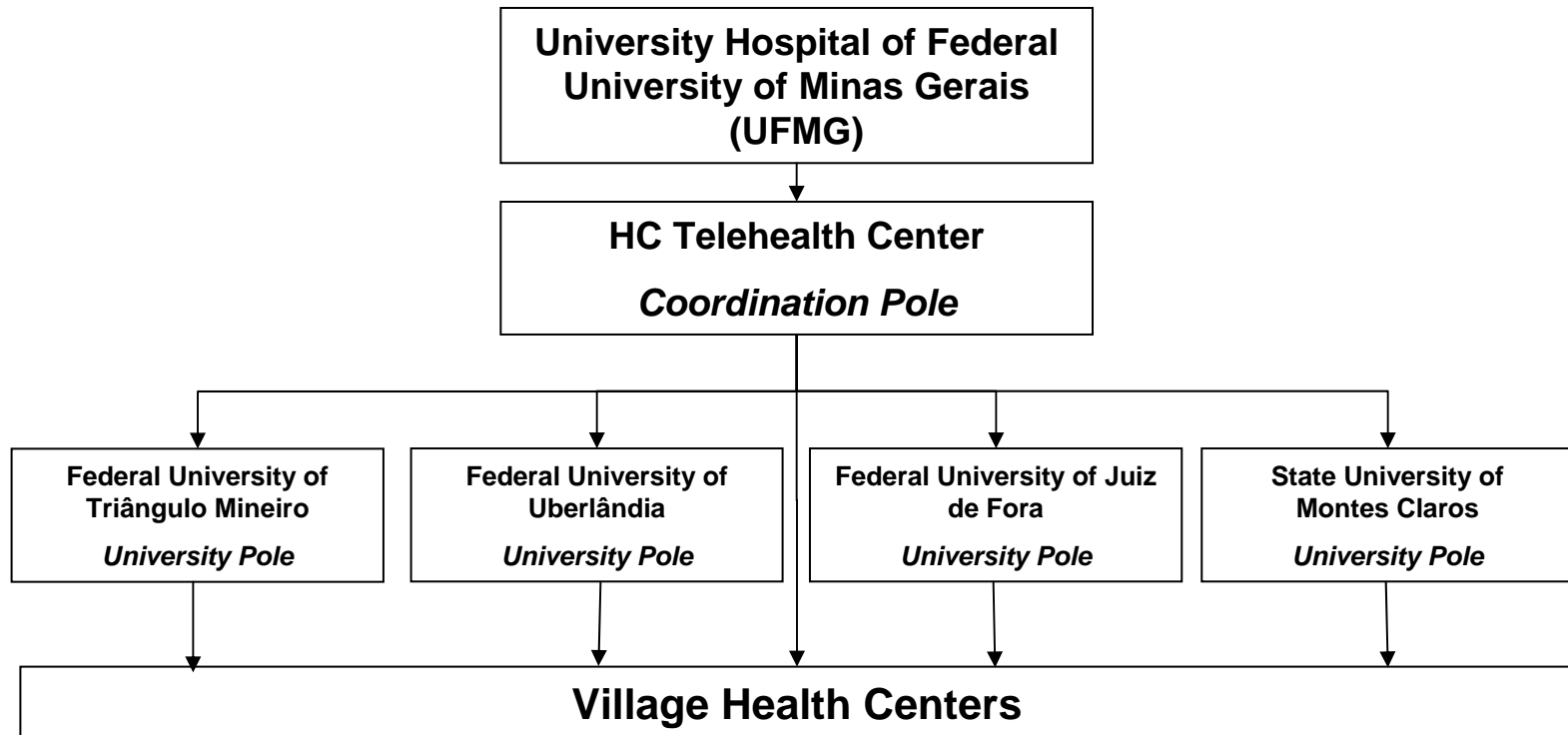
The Telehealth System

- 1. Operating in 82 villages**
- 2. Implementation period:** from February to July 2006
- 3. Activities started in June 2006:**
 - i. 12 hours duty service in Telecardiology analyzing ECG sent by local doctors and, when necessary, discussing urgency cases.*
 - ii. Teleconsultation or second opinion on other specialties (on-line and off-line teleconsultations).*

The Telehealth System

4. Organization:

- i. one coordination pole (HC Telehealth Center)*
- ii. four local poles (university hospitals)*



The Telehealth System

1. Implementation costs

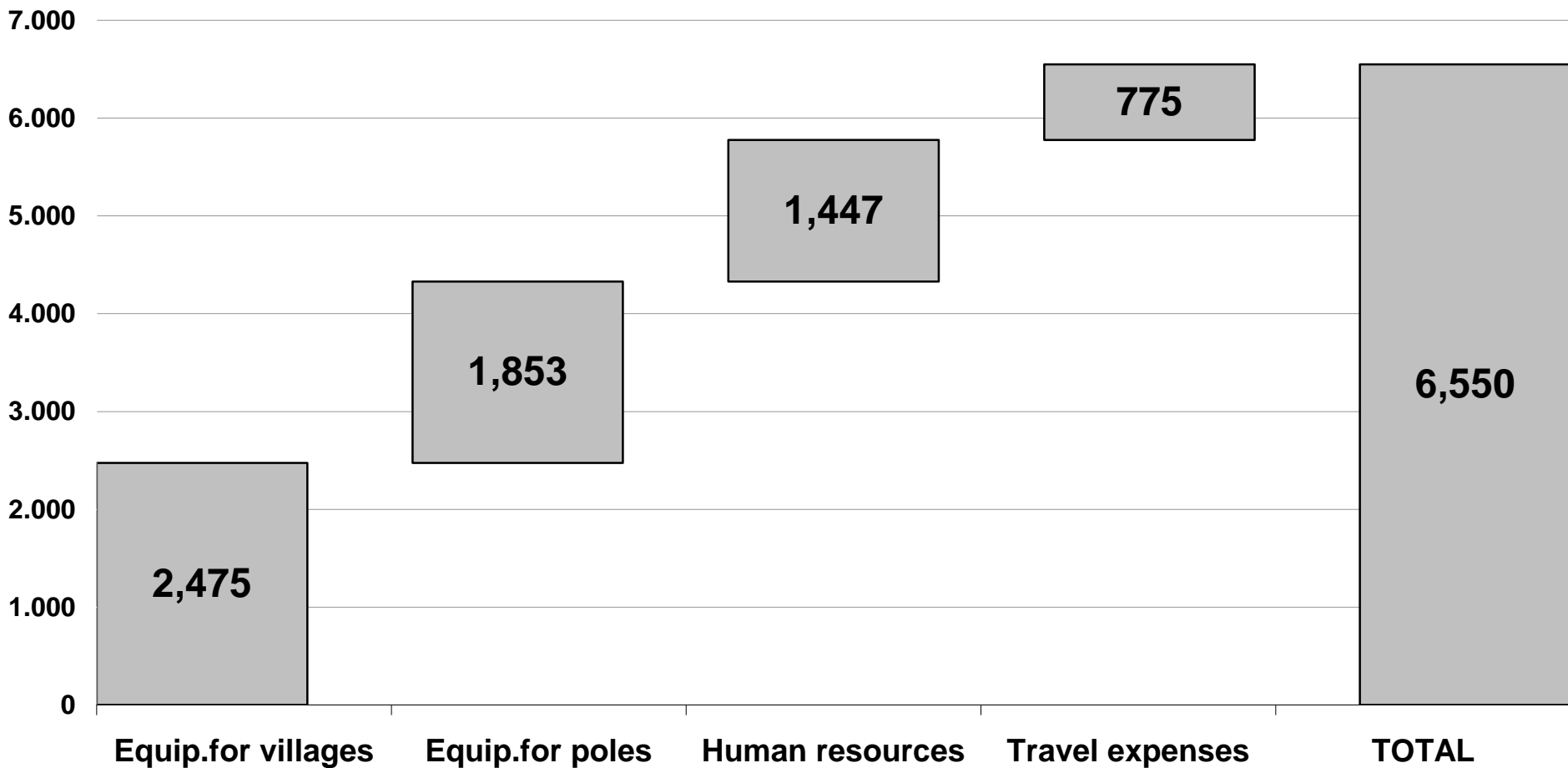
- i. equipment for the villages: computer, ECG, webcam and printer*
- ii. equipment for centers: servers, computers, VCF equipment, software*
- iii. human resources: technicians, administrative staff and clinical coordination*
- iv. travel expenses*

2. Operational costs

- i. local poles operation: administrative secretary, local coordination, technician, medical duty*
- ii. coordination pole operation: administrative staff, technicians, clinical and general coordination, medical staff*
- iii. other costs: travel, materials, communication, etc.*

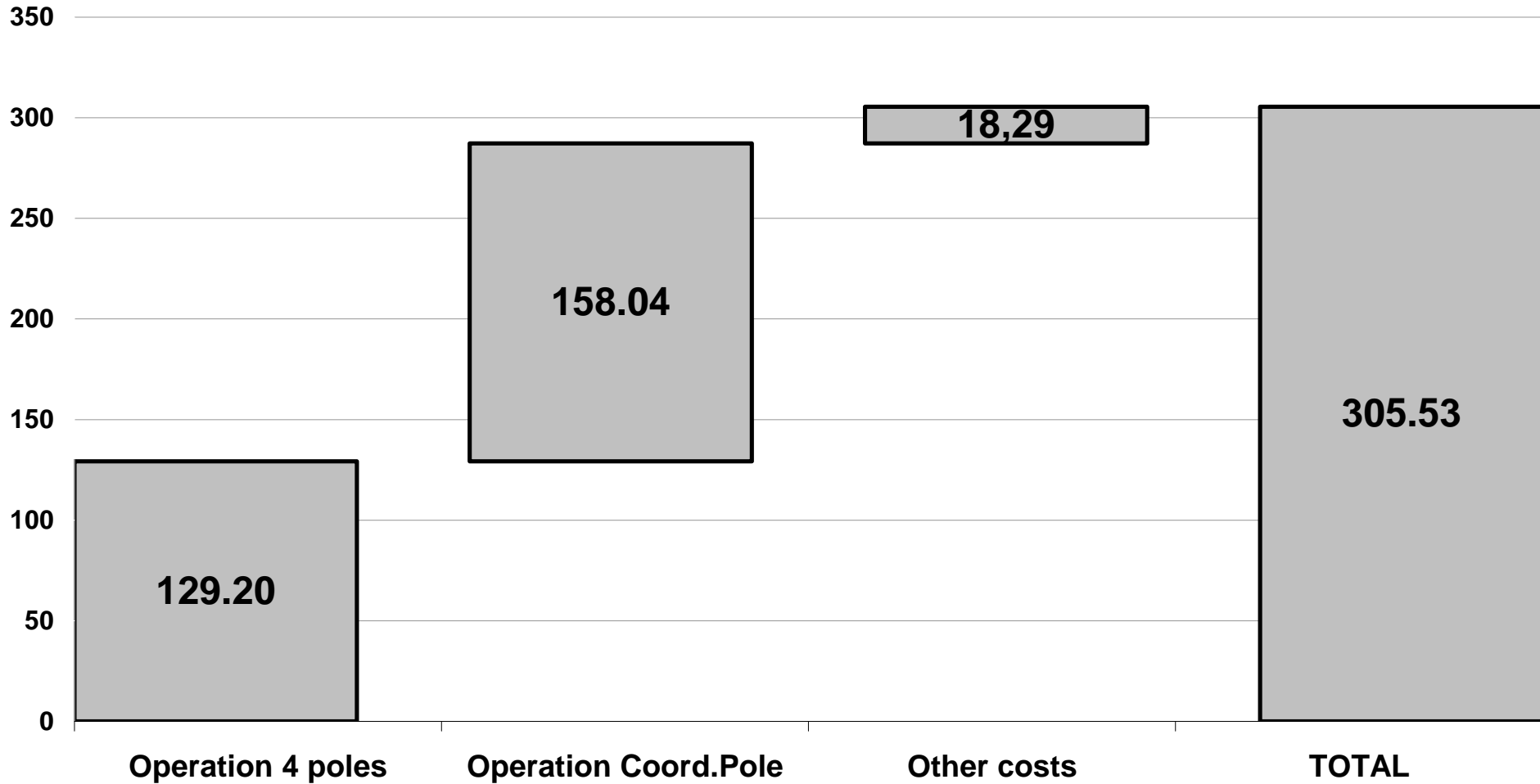
Minas Telecardio Project - Implementation Costs for 82 vilagges

Implementation in 6 months
(US\$/village)



Minas Telecardio Project - Operational Costs for 82 villeges

(US\$/month/vilagge)



Preliminary numbers related to outside village treatments

Average monthly number of patients transferred per 1,000 inhabitants	33
Average distance (km)	183
Average transfer cost (US\$/patient)	85.41

Preliminary cost analysis

Average monthly number of patient transferred per 1,000 inhabitants	33
Number of transferred patients for the smallest village in the project (2,140 inhabitants x 33 / 1000)	70
Average transfer cost (US\$/patient)	85.41
Project's operational cost (US\$/village)	305.53
Necessary reduction on the number of patients transferred to cover operational cost (305.53 / 85.41)	3.58 (5%)

Conclusion: the savings due to the reduction of transferred patient are enough to cover the operational costs of the project

This work is been sponsored by the Ministry of Health,
Brazil

Prof. Renato Minelli Figueira
Federal University of Minas Gerais
minelli@demet.ufmg.br