GEO-ETHICS SYMPOSIUM
MONDAY 14 MARCH 2016 - UNIVERSITY OF TWENTE

ETHICAL DILEMMAS AND POLITICAL STRUGGLES AROUND DEFORESTATION MONITORING IN THE AMAZON

Raoni Rajão
Federal University of Minas Gerais (UFMG)

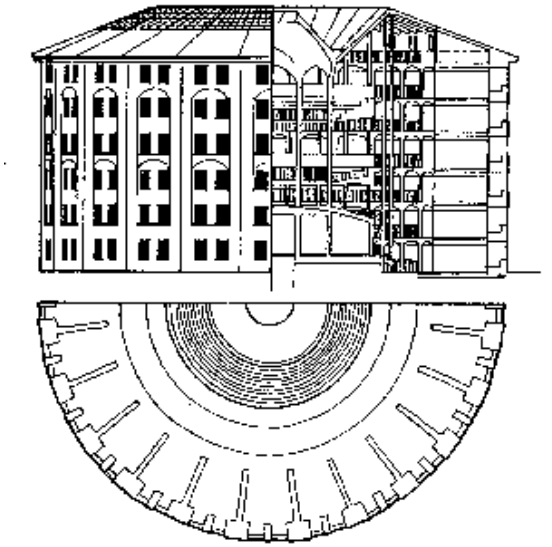
Ethics and Geo-data

- Ethics: a set of principles that guide us in determining what behavior helps or harms others
- Internal perspective on geo-ethics: technical aspects
  - Honesty, adherence to the scientific method, accuracy and comprehensiveness
    - But: Internal criteria are alone not enough as good science can do harm
- External perspective: social implications
  - Recognition of cultural bias (eg. Eurocentrism), geo-data not as mirrors but as knowledge/power, discussion of "ends" not only "means"

(Harley, 1991; Crampton, 1996)

Ethics and Geo-data

- Concerned with geoscientists being unethical by:
  - Breaking the right of citizens of being unknown by governments and corporations:
  - Enabling surveillance, Panoptical control, Geoslavery (Fisher & Dobson, 2003)



Ethics and Geo-data

- Levels of awareness of geo-ethics
  1. Ignoring ethics (or rather being unaware of ethical issues)
  2. Considering ethics from an internal perspective only;
  3. Considering ethics form both an internal and external perspectives
  4. Establishing a dialectical relationship, which modifies both internal and external perspectives

(Crampton, 1995: 85)

Ethics and Geo-data

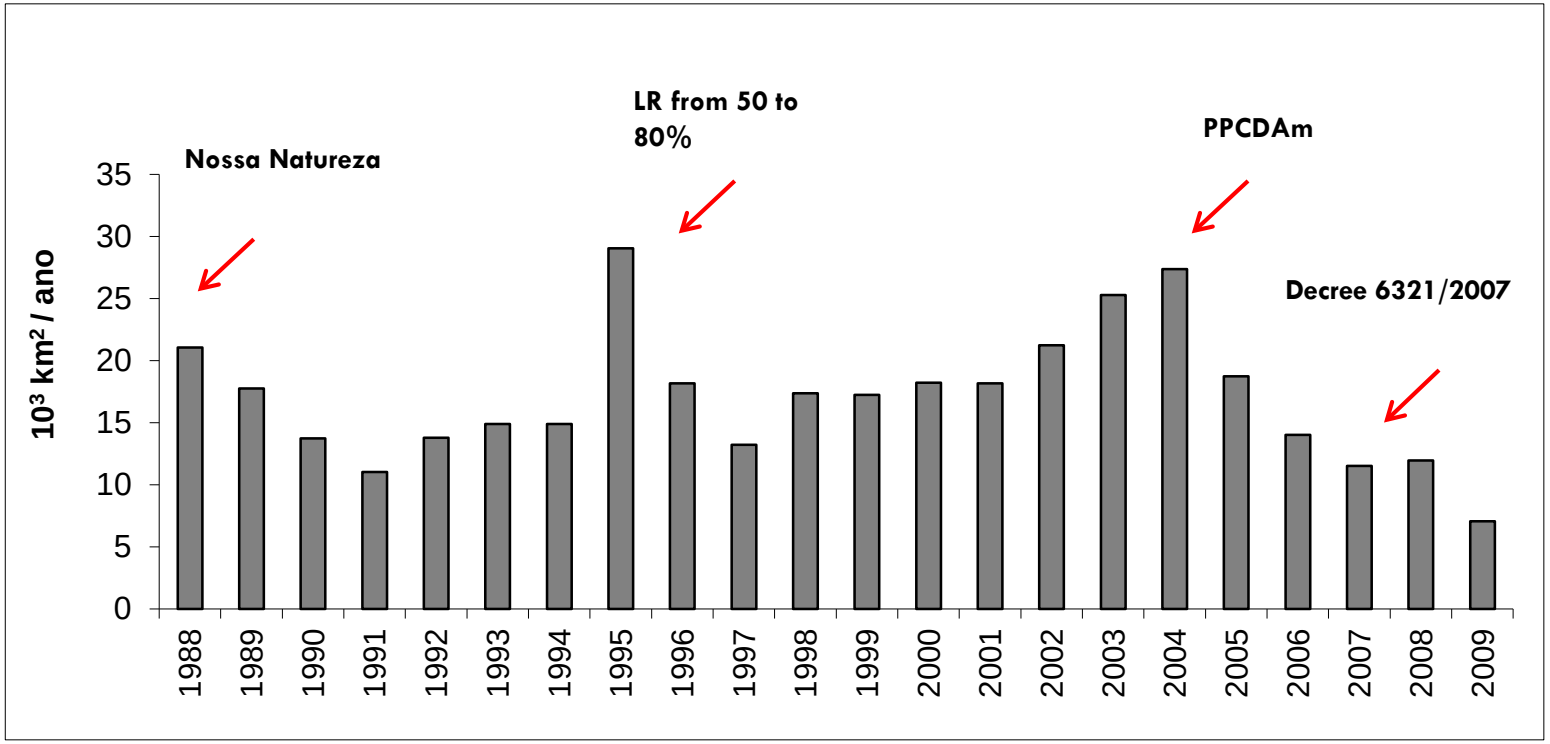
- What about of the rights of citizens to know the actions of their governments and corporations?
  - Is it ethical/unethical to hide publicly relevant geo-data?
  - How do scientists deal with internal/external geo-ethical dilemmas in practice?

Geo-data and the Amazon rainforest

- INPE: Brazilian Institute for Space Research
- 1970, 1980s: Heavy investments in remote sensing technologies (benefit from US anti-communist policies)
- 1989: Created PRODES (Program to calculate deforestation in the Amazon) a monitoring system that releases yearly data based on Landsat imagery
- Today: guide to deforestation control policies

Geo-data and the Amazon rainforest

- PRODES (yearly) monitoring became key driver of environmental policies



Geo-data and the Amazon rainforest

- INPE's monitoring systems (and methodologies) are politically sensitive:
  - 1980s: accused of "touching up" data to please President Sarney
  - 1990s: improved relations with scientific community and adoption of stronger methodologies
  - 2000s: transparency and reproducibility, considered the "envy of the world" (Kintisch 2007, Science)
  - 2008: "INPE is lying" Governor of Mato Grosso, Lula calls for investigation, Scientific community on the defense and INPE prevails.

External Geo-ethic dilemmas

- 2003: forest rangers from IBAMA (Federal Environmental Agency) demanded a new system to assist law enforcement actions
- 2004: INPE created DETER (Near real-time deforestation detection system) that provides alerts every 15 days based on MODIS images
- Monthly (unreliable) data on total deforestation was given privately to the government
- Government failed to act quickly on INPE private alerts in 2004
- Dilemma: follow hierarchy vs inform the public (activism)

External Geo-ethic dilemmas

- 2006-2007: INPE scientists were alarmed with the growth in monthly deforestation rates indicated by DETER
  - Again government failed to act quickly on privately informed geo-data
  - INPE scientists faced an external geo-ethical dilemma:

"I was losing the sleep at night this period. I was sleeping less than two hours and I was tearing out my hair. I called the director of the ministry of environment and said in different occasions "Your are not doing a thing about this. We [DETER] have already delivered to you more than 13'000 [Km^2 of deforestation]!!!" "But 13'000 is not much" he used to reply. But we were in June and we knew it was too soon for such high accumulative numbers for the year. […] They [IBAMA and the Ministry of Environment] did not hear us... Finally some guys from IBAMA called me and asked "Can you tell me again what is the web address of DETER?". "Well, ok", I replied, and gave the address WWW, and so on. Then again in July they asked again the address and I got really pissed off about this (Interviewee #35, 2008)"

External Geo-ethic dilemmas

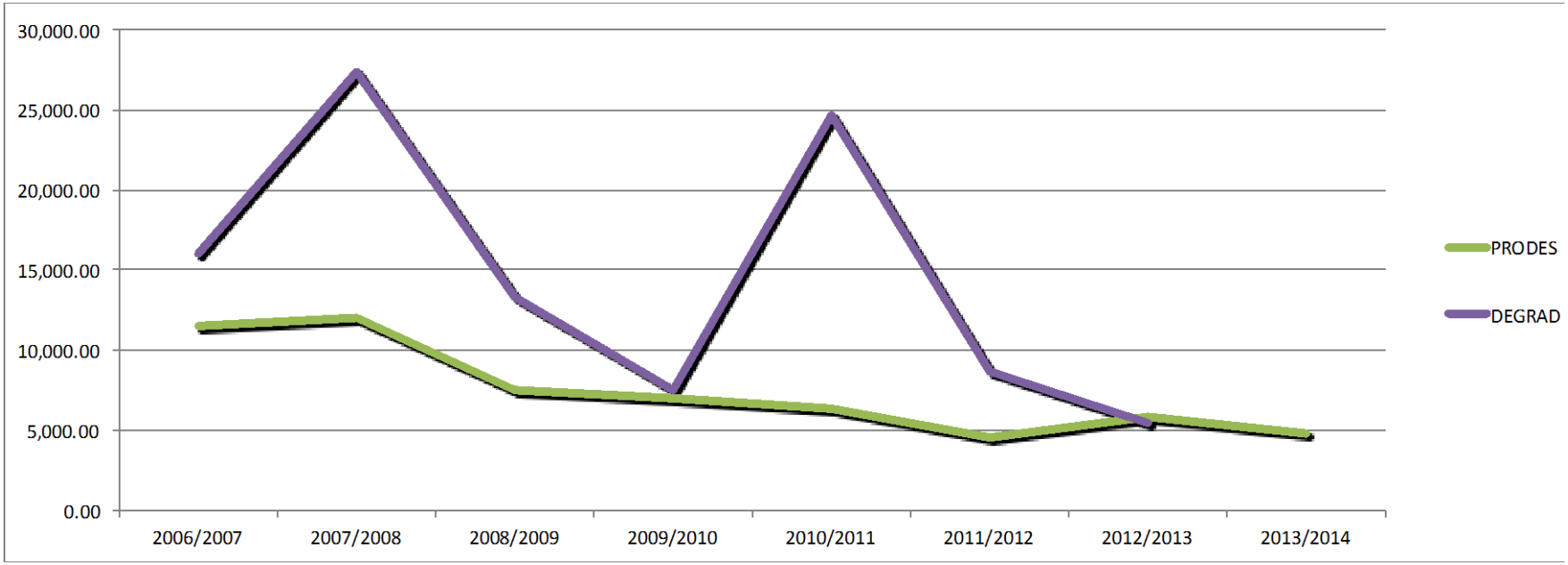
- 10/2007: INPE scientists "betrayed" their superiors and made public DETER monthly deforestation data:

"When last year [2007] deforestation started to pick up speed due to the increase in the number of fires in the region, we remembered of what happened in 2004. We were about the get bashed either ways: or for anticipating the rest and being the first to shout or for not giving the alarm. But as a vigilant [of the Amazon] we may sin by making some mistakes, but we cannot sin for omission. (Interviewee #35, 2008)"

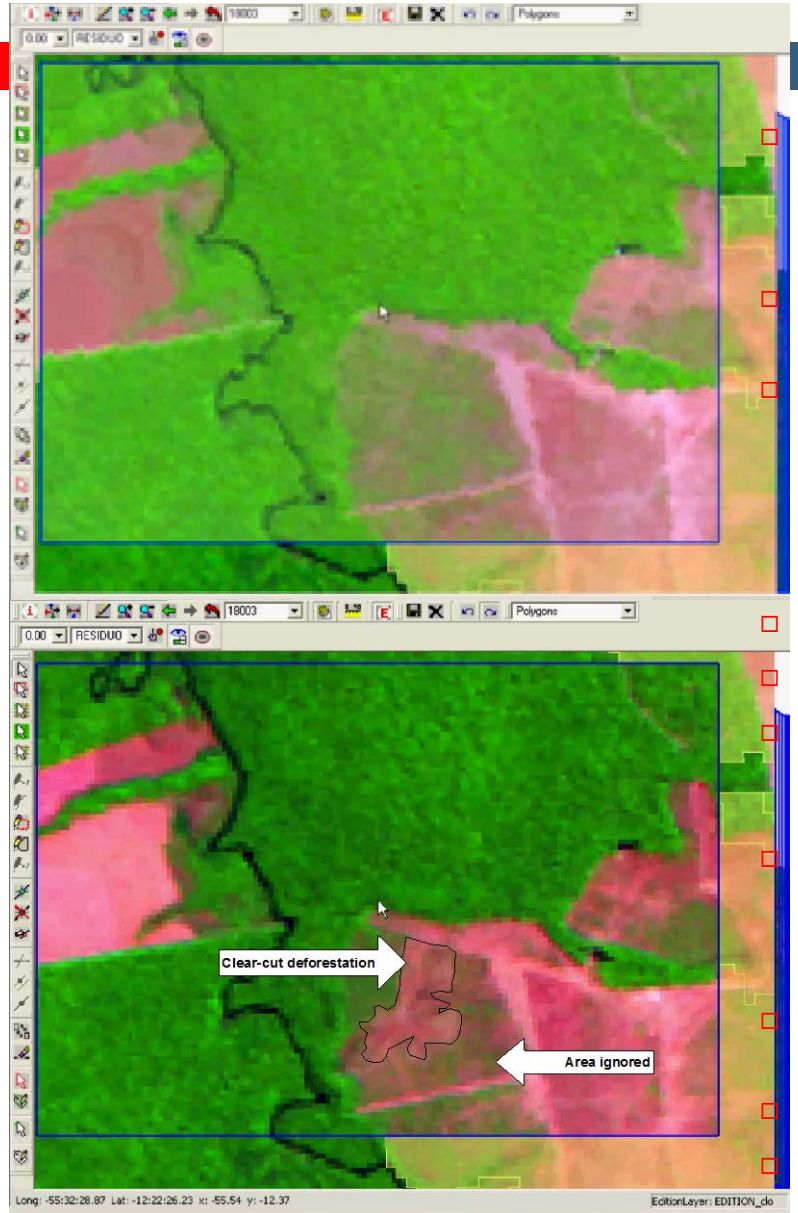
- 12/2007: Government reacted with credit restriction to farmers and stronger law enforcement (causing deforestation to drop)

Internal Geo-ethical dilemmas

- PRODES' methodology considers only "clear cut deforestation"
- The area of forest degradation in relation to clear cut has increased substantially as farmers try to "deceive" the satellite
- PRODES figures "underestimate" the real size of environmental degradation in the amazon
- Internal Geo-ethical dilemma: methodological coherence vs policy relevance



Internal Geo-ethical dilemmas



1 *Anthropologist*: Danilo [a pseudonym of an INPE scientist] explained to me that PRODES detects only clear-cut deforestation, right? Would this be a clear-cut deforestation? [I point the mouse and zooming into a reddish section of the satellite image].

Technician: That is correct. [I use the mouse to zoom in a portion of the image (Figure 2, above)] I found one.

Technician: You are right. This area most probably was not there [last year]. Maybe it was a small skirmish here and there that was not caught because Danilo told us that it was not [clear cut], but now it is, can you see it? [The technician takes control of the mouse use the scroll wheel in order to show the satellite images from the last two years for the same area]

Technician: Here, look, back then [last year] the process was starting…

Anthropologist: And now it seems to have finished…

Technician: And you cannot take it as a residue [an area wrongly ignored], because last year that [clear cut] deforestation was not there.

Anthropologist: But then I have to get this area here, is this [forest] degradation? [Pointing my finger to the portion of the screen indicating a green area but with a lighter shades of green and red (Figure 2, below)]

Technician: … You are right, you need to leave it there … for next year

Anthropologist: For next year?

Technicians: It [the remaining forest there] will be gone as well.

Internal Geo-ethical dilemmas

- Citizen ethos (short-term):
  - Would like to classify all as “deforestation”
  - Pondered by the “natural” process of deforestation (i.e. will become clear cut soon anyway)
- Scientific ethos (long-term):
  - Emphasizes the importance of coherent methodology
  - Prevails because ultimately better science

Conclusion

- Important to study geo-ethics in practice
  - Principle vs reality
  - Institutional conditions for geo-ethics (ex. job security)
- Dialectics between internal and external geo-ethics
- Geo-ethical behavior not always leads to win-win situations
- Geo-ethical dilemmas: risks, winners and losers