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"CLEANER PRODUCTION INITIATIVES AND CHALLENGES FOR A SUSTAINABLE WORLD"

# Health Impact Assessment in Southern Brazilian EIAs: too far away from recommended practices

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# Research summary

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# Introduction – research context

**Research context** is Southern Brazilian EIA – we focus on the main types of EIA carried out in Rio Grande do Sul State, where HIA is considered mandatory for EIA delivering, according State Environmental Law (Law 11.520/2000), and consequent environmental licensing approval.

Our analysis was underpinned on **EIA documents**.

We have chose **six EIAs**: two of industrial landfills, two of Small Hydroelectrical Facilities (SHF), one of road building, and another of industrial plant project.

# Main research issue and relevance

Our main **research issue** is to figure out **how far are** Health Impact Assessment (**HIA**) **practices** embedded in Environmental Impact Assessment (EIA) **from the best practices** we recovered from academic HIA literature.

## Relevance

HIA is “a methodology that aims to facilitate the mitigation of negative and enhancement of positive health effects due to projects, programmes and policies (...)” (Erlanger *et al.*, 2008: 349)

HIA is strengthening its importance in the face of the enforcement of sustainability methodologies designed to integrate environmental and human aspects.

Nevertheless, **HIA is so far largely overlooked.**

# Theory/Methodology

HIA methodologies are well spread in developed countries, nevertheless not so well applied.

**Grey literature** on HIA is prevalent, so what about **scientific** one?

What can we figure out from it?

A **bibliographic review** on HIA in scientific literature regarding Impact Assessment has the following result:

Journal/Data basis	Available records (from...to)	N. of papers
Environmental Impact Assessment Review	1994-2011	53
Journal of Impact Assessment and Project Appraisal	2003-2010	6
Scielo	2003-2009	3

# Theory/Methodology

From the bibliographic review, we selected and analysed **12 papers** which gave us a wide picture of HIA features.

We classified **25 features** according three main categories:

- **Theoretical** – related to the way authors frame HIA: as a **biomedical/risk** issue, as a **health promotion/preventive** issue, as a **social/political** issue under a more wide articulated view.
- **Broad measurability** – related to features with limited possibilities of quantification due to uncertainties.
- **Detailed measurability** – related to individual/familiar features that can be depicted by indicators of health, well being and environmental quality.

# Theory/Methodology

## Theoretical approach

- (a) **Biomedical** approach: environmental exposure X health consequences; harms from chemical/biological/psychological exposure; epidemiological/toxicological models.
- (b) **Promotion** approach: devised to avoid health damages – sanitation, for example.
- (c) **Social/political** approach: related to capacity building, stakeholder and experts integration for better manage health.

## Authors

- (a) Steinemann (2000), Kemm (2005), Harris-Roxas and Harris (2010), Putters (2005), Petticrew *et al.* (2007), Bhatia and Seto (2010), Slotterback *et al.* (2011);
- (b) Freitas (2003); Kemm (2005);
- (c) Kemm (2004), Harris-Roxas and Harris (2010), Putters (2005), Erlanger *et al.* (2008), Harris and Spickett (2010), Morgan (2010), Slotterback *et al.* (2011).



# Theory/Methodology

## Broad measurability

- magnitude of impacts/assessment
- tracking of counterfactual issues to confirm or deny health harms
- integration of different parameters given by legislation
- mitigation measures provision
- Impacts monitoring
- enhancement of positive impacts.

## Authors

Birley (2003), Kemm (2005), Harris *et al.* (2009), Rigotto (2009), Morgan (2010), Pennock and Ura (2010), Slotterback (2011)



# Theory/Methodology

## Detailed measurability

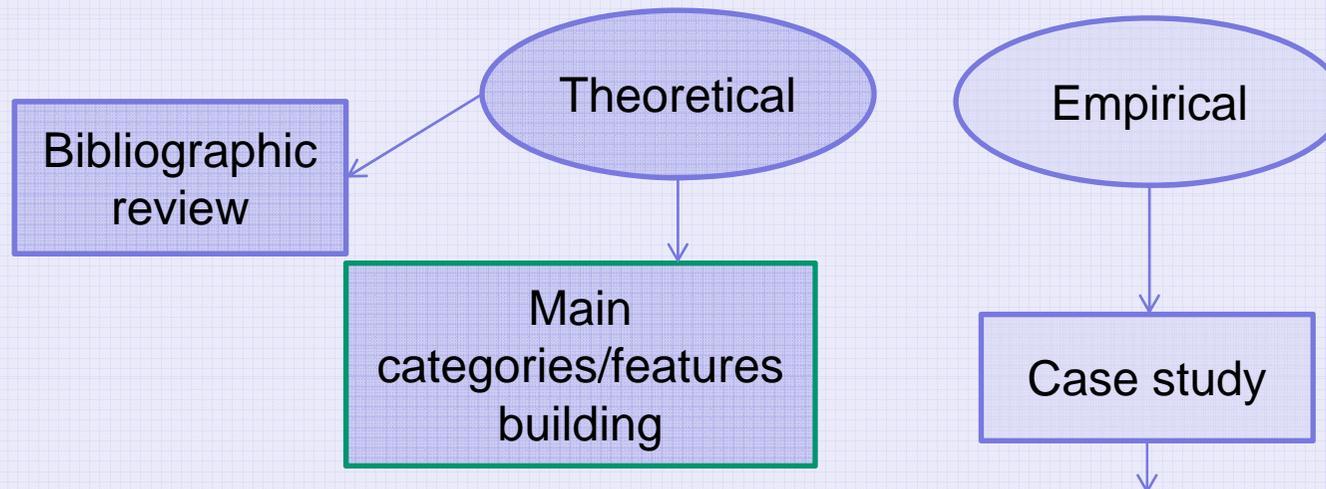
Biological/behavioral/life condition aspects: age, gender, ethnicity, nutrition, alcohol/drugs consumption, sexual practices, historic of diseases, risk acceptance, accident likelihood, occupation, education, income, housing quality.

Environmental aspects: air, water, sanitation quality/access, transportation quality, social support, health care/emergency services access, work conditions...

## Authors

Birley (2003), Bhatia and Seto (2010), Harris and Spickett (2010), Harris-Roxas and Harris (2010), Morgan (2010), Pennock and Ura (2010).

# Research design



- a. I.Landfill (1992)
- b. I.Landfill (2006)

same consultant firm

- c. SHF (1997)
- d. SHF (2005)

same consultant firm

- e. Road building (2004)
- f. Industrial plant (2007)

independent each other

- a. **Health assessment is limited to statements** about the likelihood of air and water contamination because of chrome compounds and other dangerous substances found in leather wastes.
- b. Brings a detailed description on the health effects of chrome compounds on health, but **do not provide quantification**. Presents a survey with 148 local residents.
- c. This study underwent several modifications due to environmental agency requests. It **only describes likely effects of environmental damages on the health of community members** or people employed in dam building.
- d. In this project, **the range of environmental impacts able to bring negative effects on health is clearly wider than that indicated in the first SHF study**, including solid wastes, noise, fuels use, agrottoxics, and dust besides water effects. Social and economic issues are used just to justify the project.
- e. This project **does not offer a link between environmental impacts and health effects**. It proposes monitoring of provisions that are not earlier forecasted and defined as impact factors.
- f. This project shows a heavy bulk of technical content, but technical references are given just as scientific parameters in order to establish limits for pollutants release, **without presentation of experimental relationships between pollutant levels and likely health damage**.

Assessment  
& Results

# Results

## Main remarks on theoretical aspects

Epidemiological/toxicological model is only partially found in industrial plant EIA, not found in other.

Institutional aspects of HIA as a policy issue, a partnership issue among different background experts, as a capacity building needed is not found at all, no matter what EIA we look at.

# Results

## Main remarks on broad and detailed measurability

**Population detailed profile** – age, gender, nutrition, ethnicity, sexual practices, alcohol/drugs consumption, immunity/diseases' historic: not found at all.

**Enhancing of positive impacts:** not found at all.

**Equity issues** – how the same impacts hit different people: not found at all.

**Institutional support** – access to primary health care, emergency services, security, transport... : only partially assessed in industrial plant EIA (2007).

# Results

EIA	Landfill 1992		Landfill 2006		SHF 1997		SHF 2005		Road 2004		Facility 2007	
	N	%	N	%	N	%	N	%	N	%	N	%
Status												
Fulfills	3	12	3	12	2	8	3	12	2	8	3	12
Partially fulfills	1	4	12	48	5	20	3	12	7	28	9	36
Does not fulfill	21	84	10	40	18	72	19	76	16	64	13	52

Rate of best practices for each analysed EIA considering 25 requirements

## Conclusions and recommendations

The **lack of policies** and therefore of **specific guidelines** for HIA are leading to shallow HIAs in Southern Brazilian EIAs.

Analysed EIA present a **low fulfillment level of recommended requirements**.

In some EIA, we realised **recognition of links between social issues and health impacts**, especially in the case of the recent landfill EIA.

We also point out **lack of epidemiological and toxicological models, poor accuracy**, and isolated efforts to bring about what could be called professionals HIAs.

**EIAs performed before 2000 have neither considered the magnitude of health impacts nor have they investigated health determinants.**

# Conclusions and recommendations

Assessed Southern Brazilian's EIAs are far from representing best practice.

We recommend **more detailed research** through the analysis of a greater number of documents in order to get a better representation of the evolution of HIA practice in Brazilian EIAs.

# References

Bhatia, R., Seto, E. (2010) Quantitative estimation in Health Impact Assessment: Opportunities and challenges. *Environmental Impact Assessment Review*, doi:10.1016/j.eiar.2010.08.003, p.1-8.

Birley, M., 2003. Health impact assessment, integration and critical appraisal. *Impact Assessment and Project Appraisal*, V 21, N 4, 1 Dec., 313-321 (9).

Erlanger, T.E.; Krieger, G.R.; Singer, B.H.; Utzinger, J., 2008. The 6/94 gap in health impact assessment. *Environmental Impact Assessment Review*, V 28, Issues 4-5, May-Jun, 349-358.

Freitas, C.M., 2003. Problemas ambientais, saúde coletiva e ciências sociais. *Ciência & Saúde Coletiva*, 8 (1): 137-150.

Harris, P.J., Harris, E., Thompson, S., Harris-Roxas, B., Kemp, L., 2009. Human health and wellbeing in environmental impact assessment in New South Wales, Australia: Auditing health impacts within environmental assessments of major projects. *Environmental Impact Assessment Review*, V 29, Issue 5, Sept.: 310-318.

Harris-Roxas, B., Harris, E. (2010) Differing forms, differing purposes: A typology of health impact assessment. *Environmental Impact Assessment Review* doi:10.1016/j.eiar.2010.03.003, p. 1-8.

Harris, P., Spickett, J. (2010) Health impact assessment in Australia: A review and directions for progress. *Environmental Impact Assessment Review*, doi :10.1016/j.eiar.2010.03.002, p. 1-8.

Kemm, J., 2004. What is health impact assessment and what can it learn from EIA? *Environmental Impact Assessment Review*, V 24, Issue 2, Feb., 131-134.

Kemm, J., 2005. The future challenges for HIA. *Environmental Impact Assessment Review* V 25, Issues 7-8, Oct., 799-807.

Morgan, R.K. (2010) Health and impact assessment: Are we seeing closer integration? *Environmental Impact Assessment Review*, doi:10.1016/j.eiar.2010.03.009.

Pennock, M., Ura, K. (2011) Gross national happiness as a framework for health impact assessment. *Environmental Impact Assessment Review*, 31, 61-65.

Petticrew, M., Cummins, S., Sparks, L., Findlay, A., 2007. Validating health impact assessment: Prediction is difficult (especially about the future). *Environmental Impact Assessment Review* V 27, Issue 1, January, 101-107.



# References

Putters, K., 2005. HIA, the next step: Defining models and roles. *Environmental Impact Assessment Review* V 25, Issues 7-8, Oct., 693-701.

Rigotto, R.M., 2009. Inserção da saúde nos estudos de impacto ambiental: o caso de uma termelétrica a carvão mineral no Ceará. *Ciência & Saúde Coletiva*, 14(6), 2049-2059.

Rio Grande do Sul, 2000. Lei 11.520. State Environmental Code. Rio Grande do Sul Official Press: Porto Alegre, August, 4th.

Slotterback, C.S., Forsyth, A., Krizek, K.J., Johnson, A., Pennucci, A., 2011. Testing three health impact assessment tools in planning: A process evaluation. *Environmental Impact Assessment Review* V 31, Issue 2 March: 144-153.

Steinemann, A., 2000. Rethinking human health impact assessment. *Environmental Impact Assessment Review*, V 20, Issue 6, Dec, 627-645.