

Research Project: Work, Wellbeing and Welfare: Poverty, Risk & Vulnerability.

Researchers: Dr Diego Vazquez.

Background: People's welfare, particularly in poorer countries or regions, is undermined by both social vulnerability (linked to poverty, age or lack of education) and environmental hazards (both natural and the consequences of business activity). These factors are typically treated as separate policy agendas, yet in practice often negatively reinforce each other to create so-called 'hot spots'. This research created an innovative conceptual framework, a methodology and indicators to help businesses, policy-makers and communities to identify such 'hot-spots' and generate well-informed management strategies to deal with their underlying risk factors. It has been developed in four countries, Argentina, Bolivia, Spain and Brazil, through interdisciplinary and collaborative research whose lessons have demonstrably aided governments in their planning and decision making to protect vulnerable populations.

The project was a partnership with the Universities of Almeria (Spain) and Buenos Aires (Argentina) and was also partially funded by the Spanish Ministry of Science and Education and the European Fund for Regional Development with grants awarded to the collaborating institutions. Dr Diego Vazquez lead the project in terms of proposal development, coordination, writing of outputs, and development of the methodology for the mapping of environmental risks which was central to the project. All the data analysis for the project was done at BRASS and Dr Vazquez is an author on all the papers and reports produced by the project and first author of the book that summarised the project and its outputs.

Aims & objectives:

- To develop a set of indicators and methodologies to spatially identify 'hot-spots' and manage risks, to be tested in three countries where maps of environmental threats, social vulnerability and risks were produced.
- To develop and assess a qualitative model of business and policy intervention in hot-spots by taking into joint consideration the concepts of stakeholder engagement and integration, CSR, entrepreneurship and adaptability.
- To identify cases of good practice of interventions to reduce social vulnerability and environmental risk in Latin-America – according to the concepts developed in the model.

About the research: The researchers undertook conceptual and empirical research that developed a framework for risk diagnosis differentiating between evaluated risk and managed risk by using five dimensions: exposure, hazard, vulnerability, governability and uncertainty. They also produced a model of business and policy intervention in areas with high risk (hot-spots) building on concepts of stakeholder engagement, corporate social responsibility (CSR), entrepreneurship and adaptability.

The researchers defined vulnerability as a multi-dimensional construct, and evaluated it through an "*Index of Vulnerability*" based on nine indicators. This methodology is more powerful than those tools that assimilate vulnerability with situations of poverty, as it allows the identification of situations of susceptibility to hazards that go beyond the level of income (for instance age or access to infrastructure). The indicators measure aspects of the social reality that expose different situations of weakness or fragility amongst the social groups studied, and determine their preparedness to deal with the negative impacts arising from hazardous processes associated with business activity.

Hazards were evaluated with an "*Index of Hazardousness*" using an algorithm to extend the influence of the potential hazard of individual industries to the surrounding area, also overlapping

the effects of various industries within an area of influence. Mapping the data to assess situations of hazardousness arising from cumulative negative impacts of firms was an innovative approach. It allowed the identification of hazardousness due not only to large industries but also to geographical clusters of numerous small industries whose individual effect was insignificant (and therefore less regulated or controlled), but whose combined emissions may have constituted a greater threat than that of a single large firm.

Results and outputs: Indicators and methodologies to spatially identify ‘hot-spots’ and manage risks, were developed and tested in three countries where maps of environmental threats, social vulnerability and risks were produced.

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- De-Burgos-Jiménez, J., Vazquez-Brust, D. and Plaza-Úbeda, J. (2011), [Adaptability, entrepreneurship and stakeholder integration: Scenarios and strategies for environment and vulnerability](#), *Journal of Environmental Protection*, 2 (10), 1375-1387
- Plaza Ubeda, J., Burgos-Jimenez, J., Vazquez, D., Liston-Heyes, C. (2009), [The win-win paradigm & stakeholder integration](#), *Business Strategy & The Environment*, 18(8), 487-99
- Vazquez, D., et al. (2009), [The challenges of businesses’ intervention in areas with high poverty and environmental deterioration: Promoting an integrated stakeholders’ approach in management education](#), in Wankel, C. and Stoner, J. (eds.), *Management Education for Global Sustainability*, Information Age Publishing, pp. 175-206
- Vázquez Brust, D., Plaza Úbeda, J.A., Burgos Jiménez, J. De, Natenzon, C. (2012), [Business and Environmental Risks: Spatial Interactions Between Environmental Hazards and Social Vulnerabilities in Ibero-America](#), Springer

Impacts achieved/potential for impact: Public servants and technicians working for the Argentinean government were part of the research team and advised on ways to communicate results to policy makers. Workshops were subsequently developed with local authorities in Argentinean provinces explaining the methodology and how it can be applied at a more local level. In Bolivia, decision-makers and community leaders were involved in Delphi studies and had an active role in the definition of indicators. Whilst in Spain and Brazil, the non-academic stakeholders involved have been private companies and industry associations. In Argentina during 2010, the project’s methodological approach and preliminary analysis were presented in two workshops with policy-makers. Representatives of the Government and NGOs were involved in the project are already using the findings and indicators from the project for assessing national-level infrastructure projects. The Ministry of Economy for Argentina uses the methodology from the project in its cost benefit analyses looking at the socio-environmental impacts of new infrastructure projects. Regionally the Ministry of Infrastructure for Buenos Aires Province is using the findings in developing their long-term “Masterplan” in planning locations for new projects. The Ministry of Education for Buenos Aires City has used the project’s findings and methodology to introduce the concepts of ‘vulnerability’ to primary school children using information and communications technology (ICT). In Spain, the results of the projects have contributed to the enhancement of the CSR standards of the Chamber of Commerce and Industry of Almeria Province. This professional association stated on their website how the results of the project had “*informed the design of internationalization strategies aimed to achieve compatibility between economic objectives and sustainability.*” This work also features as a REF Impact Case.