

# EDITORIAL

## **What is post-normal in the relations between the environment and society?**

In Western culture, modernity and positivism have dictated that classical scientific learning is the only way to produce knowledge and provide answers to some of humanity's aspirations and dilemmas. The type of science imposed by modernity has become hegemonic and hyper-specialized, and is constrained by the fact that each discipline is dominated by consolidated peer groups who are guided by established paradigms. While these groups invest knowledge with legitimacy, they also reproduce the existing paradigms. Peer-group communities and their social organizations influence and are influenced by science and technology policies, affecting the training of young researchers who are taught to reproduce pre-established models. Thus, these frameworks are reproduced whilst remaining hermetically sealed to common sense and impermeable to the critique and quality control of other social groups whose knowledge and interests may be guided by diverging scientific principles.

Of course, new paradigms regularly confront old ones and are sometimes successful. However, the tendency to establish a similar self-propagating rationale, in terms of policies, the training of new researchers and the consecration of hegemony, prevails and given that this is the representation of certainty it leaves all other forms of knowledge on the margins. Thomas S. Kuhn calls the organization of peer communities around particular paradigms and the inherent process of self-reproduction, normal science.

Our objective here is not to accuse hyper-specialization in science of being an organizational process by a group of social actors whose sole purpose is to maintain hegemony and power. Science as we know it is undoubtedly driven by the quest for explanations and solutions of the highest importance. It is quite clear that scientific and technological innovations are fundamental for humanity. It is also the case that the enormous advances in science witnessed recently are based on a logic organized around paradigms which are neither static truths nor points of view which unite academic peers around their own credibility. It is important that peer communities are carefully analyzed and understood as social and political structures.

On the other hand, the crises of uncertainty, together with the complexities and the extent of the side-effects of the urban and industrial age, have brought to light the urgent need to consider different types of knowledge within an inclusive and interactive rationale. This is because without appealing to this rationale, modernity, and its objective point of view, have not only hindered other types of knowledge, but resulted in contradictions and mistakes. Cognitive exclusion can be associated to social exclusion. If other types of knowledge are not used in decision-making processes about the most important problems faced by humanity, it is also the case that large population groups

do not have the means to protect themselves from the consequences and ramifications of these problems.

Zygmunt Bauman argues that post-modernity offers the potential for greater tolerance and inclusion, thus providing space and importance to divergent standards of certainty. This perspective emerges, not as a way of redeeming the mistakes of the past, but in face of the seriousness and the extent of the crises and uncertainties which have come to light in the second half of the 20th century. In present times, we are faced with a global problem which may lead to a number of very different developments at regional and local level, that is, global climate change and its systemic consequences which can occur in socio-environmental contexts in different spaces and time scales. The conceptualization of these problems demands the extensive involvement of different social actors concerning issues related to scientific uncertainties and the need to take urgent decisions, even if consequences are only observed in the medium and long-term. Considering the uncertainties regarding predictions for the future which contain a degree of certainty and reliability, it is vital that we are wise enough to glean a vision of the future so that we can take responsibility for changing it.

It is in this respect that we find common ground with the critique of Silvio Funtowicz and Jerome Ravetz, in which they argue that a new perspective must come about from a break with the current model so that science can advance in face of questions posing a high degree of uncertainty. Within this context, a favourable post-modern conjuncture of inclusion and tolerance can contribute to extensive critical control and consensual decision-making by a wide range of agents in society. They should be included in solutions to problems which have been conventionally restricted to peer communities within the logic of normal science - on the one hand, the democratization of science, while on the other, the co-responsibility of society and the need to defend its own interests. Thus, highly important and complex topics involving socio-environmental dynamics should be analyzed from the point of view of post-normal science.

This issue of *Ambiente e Sociedade* brings together 12 articles, grouped around five topics: biodiversity and land-ownership, socio-environmental conflicts, cities and vulnerabilities, environmental certification and agroecology.

The article “*Legal regime of the Atlantic Rain Forest and the risk to survival in situ of endangered species*”, by Fernanda Bloise Prado, Fernanda Carla Wasner Vasconcelos and Cristina Kistemann Chiodi, assesses the ecological processes involving vulnerability to the extinction of threatened species in the Mata Atlântica. In order to do this, the authors question the use of legal instruments established by current legislation.

Martha Schaer-Barbosa, Yvonilde Dantas Pinto Medeiros and Maria Elisabete Pereira dos Santos analyze the viability of implementing water reuse systems in the agricultural regions of the municipality of São Domingos, in the semiarid region of the Brazilian state of Bahia. The article “*Waste water reuse as a mitigating factor to the effects of droughts in the state of Bahia semiarid viability study* “ discusses the main obstacles to reusing water in the region.

Christiane Fernandes dos Santos, Elisabete Stradiotto Siqueira, Iriane Teresa de Araújo and Zildenice Matias Guedes look at the social, economic and environmental

aspects of the practices of family farmers in Mossoró in the article “*Agroecology as a means of sustainability for family-based agriculture*” and highlight the gains and challenges that need to be overcome in the search for sustainable development.

Renan Almeida Baptistini and Tulio Alberto Martins address the challenges in the work of Community Health Workers in rural areas and point to innovations and different practices workers resort to in order to fulfil their responsibilities. The article “*Community Health agents: challenges of working practices in the rural area*” was based on interviews and observations of the routine of these professionals working in the municipality of Jerônimo Monteiro, State of Espírito Santo, Brazil.

In the article “*Guardians of an enormous carbon stock – the Amazon rainforest and its traditional populations bound by the sustainability dispositif*”, Shaula Maíra Vicentini de Sampaio and Maria Lúcia Castagna Wortmann discuss the new relationships involving the Amazon forest and traditional populations in relation to the protection of carbon stocks and, in this way, associate climate change issues to the market of nature preservation.

In the Article “*Cultural Heritage, City, Sustainability: what is the role of urban legislation in preservation and development?*” Vanessa Gayego Bello Figueredo analyzes the associations between the listing of buildings and urban planning instruments, such as master plans and special zones, in the context of land planning and urban development, particularly in relation to the management of historical sites.

Cássia de Souza Rares and Ana Lúcia Brandimarte discuss the anthropogenic pressures on the aquatic environment and environmental services for the conservation of bodies of water. The article “*The challenge of aquatic environments conservation and continuity of environmental services in urban green areas: the case of Cantareira State Park*” draws attention to the fact that protecting vegetation does not always result in the protection of aquatic habitats and water quality.

The article “*Conflicts between humans and giant otters (Pteronura brasilienses) in the Amanã Reserve, Brazilian Amazonia*” identifies and analyzes the threat of human impacts on this species and its population. Danielle dos Santos Lima, Miriam Marmontel and Enrico Bernard point to the importance of mitigating and monitoring environmental impacts in order to maintain giant otters in the Amanã Reserve.

In the article entitled “*Addressing socio-environmental conflicts in cases of coal mine subsidence in Brazil and the USA*” Mauro Silva Ruiz, Rosany Correa, Amarilis Lúcia Gallardo and Ayrton Sintoni analyze the socio-environmental conflicts related to the impact of coal mine subsidence in Santa Catarina and Illinois in order to identify the lessons learned in the process of implementing subsidence regulation in Illinois which could be employed in Brazil.

The article “*The Vulnerability of the elderly in disasters: the need for an effective resilience policy*” seeks to analyze the vulnerable situation of the elderly population taking into account their level of fragility in emergency situations. Within this context Airton Bodstein, Valéria Vanda Azevedo de Lima and Angela Maria Abreu de Barros advert us to the fact that Civil Defence needs to draw up specific protocols for the prevention, preparation and rescuing of the elderly population.

In the article “*The use of Asbestos in Brazil: The Clash of two Rationalities in the Supreme Federal Court*”, Heloísa Bot Borges and Valdir Fernandes discuss the relationship between the environment and economics in cases involving asbestos in the Supreme Federal Court. The open response of the Supreme Court to sustainable development contributes to the construction of an environmental rationale, even in face of economic interests and the dynamics of capital.

With a view to establishing the best performance certification to be used in residential buildings in Brazil, Sergio Fernando Tavares, Marcelo Henrique Farias de Medeiros and Paula Regina Mendes Grunberg conducted a comparative analysis between the three most popular certification systems in use in Brazil. The article “*Environmental Certification for Homes: a comparison between LEED for Homes, Processo Aqua and the Selo Casa Azul [Blue House Seal]*” assesses various criteria in order to define which certification system is most appropriate to the Brazilian reality.

Our best wishes and we do hope you enjoy this issue.

Pedro Roberto Jacobi and Leandro Giatti