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Rio+20 and the contribution of USP

THE UNIVERSITY of São Paulo (USP), through the Office of the Vice-Dean for Graduate Studies coordinated by Prof. Vahan Agopyan, decided to create a working group to organize the contribution of USP to the UN Conference on Sustainable Development - Rio+20, to be held in Rio de Janeiro in June 2012. To this end, an internal event was held at USP, which was attended by several heads of Graduate Programs related to the Conference themes. On the occasion, a working group was set up, comprised of Professors Arlindo Philippi Jr., Celio Bermann, Cesar Ades, Edmilson Dias de Freitas, Eliezer Martins Diniz, Leandro Luiz Giatti, Maisa de Souza Ribeiro, Pedro Roberto Jacobi, Tercio Ambrizzi, Wagner Costa Ribeiro, Wanda Gunther and Wellington Delitti. It was also decided that the Research Group in Environmental Sciences from the Institute of Advanced Study would be charged with coordinating the work.

After several meetings, the group decided to put together a collection of Theses and Dissertations defended by USP's students between 1992 and 2011 on subjects related to Rio+20, including information on the author, as well as an abstract and keywords. In addition, an analysis of this material by USP experts would also be provided, indicating the progress and challenges related to each research in the following areas - Governance and Agenda 21; Green economy and social inclusion; and Climate Change. The set of texts in this section of *advanced studies* addresses this second stage.

Multilateral meetings as the ones to be held in Rio de Janeiro often serve as an encouragement to new forms of international cooperation. In addition, they draw public attention before, during and after the event, which in itself ensures greater visibility to and discussion of topics of general interest. It is even better when such a major event, which brings together heads of state and government, is able to produce binding agreements that will lead them to meet targets towards a less unequal world in the use of and access to natural resources.

Unlike the United Nations Conference on Environment and Development - Rio-92, which was held at a time of international optimism, when the world had just come out of the Cold War and there were signs of greater understanding among countries, Rio+20 will take place under the effects of the greatest financial, economic and political crisis in recent years. The outcomes

and difficulties generated by this crisis will not be fully known by June 2012. Therefore, for many analysts the outlook is blurry.

Among the themes of Rio+20 there are aspects that still unclear in the academic debate, such as the green economy, which until recently was addressed from the perspective of sustainability. Combining development with environmental conservation and social inclusion is an old challenge that now seems to be gaining a new meaning. This challenge would require creating new production paradigms for the material basis of life reproduction that consider social inclusion on a nobler matrix than inclusion via the consumption of goods, as several countries have done in recent years. It is about seeking innovative alternatives that are prone to arise in difficult times. It is not the time to cling to outdated models that seem to indicate structural and repetitive problems, which clearly points to the need to seek the new. Unprecedented standards should be established, and that requires discussing targets and actions focused on sustainable development, which in turn should address differences among countries in the political, economic, cultural and social aspects, as well as regards the availability of natural resources.

Another point to be discussed at Rio+20 is international environmental governance, which should be strengthened by the greater participation of emerging countries. The challenge is to have a more inclusive international environmental governance, which involves the discussion of alternatives such as strengthening the United Nations Program for the Environment and the need to discuss the complex international environmental order that should regulate human activity on the planet and its environmental impacts. The complex set of international agreements in force indicates real difficulties to be overcome. Each has its own legal status and many of them compete with each other, resulting in different measures of interstate relations (Zanirato & Ribeiro, 2007). It will be very hard to think of another power arrangement without considering the treaties in operation.

It is curious to note that Rio+20 will address core issues tangentially, such as climate change and biodiversity conservation.

Regarding climate change, the meeting held in Durban (South Africa) in December 2011 was an important breakthrough, as countries recognized the need to reduce greenhouse gas emissions starting from 2020. But a metric capable of accommodating differences among countries with respect to emissions and the consequences thereof is yet to be established.

Biodiversity conservation is essential for at least two reasons: the maintenance of human living conditions on Earth and the conservation of genetic information from a utilitarian perspective of nature. These two views cannot be exclusive, much less disregard other forms of relationship with the environment, as indicated by several traditional communities around the world.

The expectation is that Rio+20 will mark an advance over what exists so far. However, due to the challenging international political scene, it will not be easy to change the set of rules and the goods production model.

The event will have fulfilled its role if it at least allows an ethical reflection for identifying the barriers that must be overcome in favor of a more inclusive and less unequal world with respect to access to and use of natural and energy resources.

Next, the reader will find the methodology used in the survey of nearly 1,500 papers produced between 1992 and 2011, which can certainly offer new approaches to social and environmental problems related to the necessary revision of the current model.

The survey methodology

To survey the production of Theses and Dissertations submitted to the Graduate Programs of the University of São Paulo on topics of interest to Rio+20, the coordinators of graduate programs prepared a list of papers related to Biodiversity, Governance and Agenda 21, Green Economy and Climate Change. This survey was supplemented by the search, in two digital collections, of USP Theses and Dissertations: Dedalus (<http://dedalus.usp.br>) and the Bank of USP Theses and Dissertations (www.teses.usp.br). Searches in the Dedalus and Theses Database systems were conducted based on keywords defined by the coordinators of each of the topics mentioned, who have authored the texts below. Obviously, not all the papers related to the topic show some of these words in their title, keywords or abstract. Therefore, the first approach mentioned was of the utmost importance to make the survey more comprehensive, as it was based on the experience of those who participated in the production of Theses or Dissertations, being authors, supervisors or program coordinators, or even members of examining committees. The data obtained were then compiled and organized into spreadsheets for analysis purposes. Some of the papers listed are exploratory, focused on scientific development, which may or may not have immediate application, but that were kept in the list due to their technological innovation potential.

The presence of issues related to Rio+20 is shown in Chart 1. The chart shows that the first peak production of theses and dissertations occurred in 1998, six years after the Rio meeting in 1992, followed by a slight decline until 2001. The second production peak occurred in 2002, after which there was a decrease until 2006, when a new growth cycle is observed, up to the third peak, in 2009. Interestingly, 2002 was the year of the World Summit for Sustainable Development, a meeting held in Johannesburg with the aim of assessing the progress of Rio-92. The great repercussion of the 2009 Copenhagen meeting on climate change may have influenced the work produced in the following years.

The themes highlighted were identified in a large number of USP's Units. The survey indicated that 39 different Units addressed topics related to Biodiversity, Governance and Agenda 21 and Green Economy, and pointed out that many projects were developed in Inter-unit programs such as the Graduate

Program in Environmental Science (PROCAM) and the Graduate Program in Latin America (ProLam).

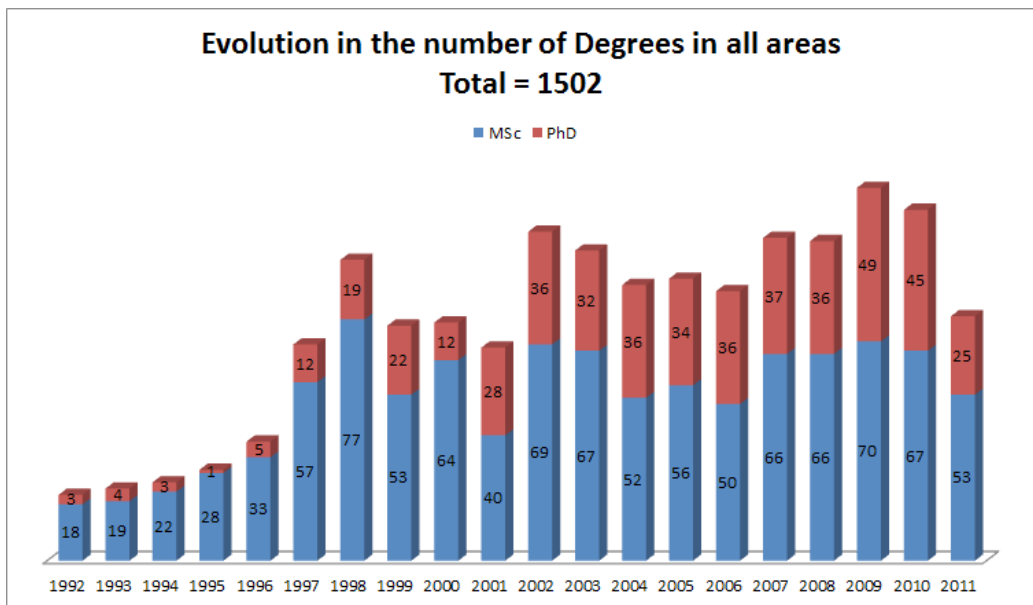


Chart 1 – Evolution in the number of MSc Dissertations and PhD Theses defended in Graduate Programs at the University of São Paulo between June 1992 and September 2011, involving issues related to Biodiversity, Governance and Agenda 21, Green Economy and Climate Change.

The total number of Theses/Dissertations defended per Unit, divided into MSc and PhD is shown in Chart 2.

Programs with an interdisciplinary approach are ahead when analyzing the results per USP’s unit. Besides PROCAM, the Energy program stands out, together with the Polytechnic School and the School of Economics and Business Administration. In the field of Humanities, the highlight is the School of Philosophy, Letters and Human Sciences. Also worth highlighting is a traditional unit in the field of health promotion, the School of Public Health. All these units have an interdisciplinary character, the most widespread to address social and environmental issues, as mentioned by Philippi Jr. & Silva Neto (2011) and Ribeiro (2010). Environmental issues are complex and require a multiple and differential analysis that brings together skills from different fields of knowledge in a critical way, while alternating and combining classical methodologies for establishing new measures of scientific, technological and public policy production.

Table 1 – USP Units with Theses and Dissertations defended on topics related to

Biodiversity, Governance and Agenda 21, Green Economy and Climate Change

Unit	Acronym	Unit	Acronym
School of Communications and Art	ECA	Institute of Electrotechnics and Energy	IEE
Nursing School	EE	São Carlos' Institute of Chemistry	IQSC
Medicine School	FM	Medicine School of Ribeirão Preto	FMRP
School of Architecture and Urbanism	FAU	Engineering School of São Carlos	EESC
School of Economics and Business Administration of Ribeirão Preto	FEARP	Law School	FD
Institute of Mathematics and Computer Science	ICMC	Inter-Units Program in Energy EP/IEE/FEA/IF	Inter Energia
Inter-Units Program in Biotechnology USP/IPT/ Butantan Institute	Inter Biotec	Inter-Units Program in Environmental Science	PROCAM
Institute of Energy and Nuclear Research	IPEN	School of Philosophy, Sciences and Letters of Ribeirão Preto	FFCLRP
Institute of Chemistry	IQ	Oceanography Institute	IO
Latin American Integration Program	PROLAM	Polytechnic School	EP
School of Economics and Business Administration	FEA	Center of Nuclear Energy in Agriculture	CENA
School of Public Health	FSP	Institute of Biosciences	IB
School of Philosophy, Letters and Humanities	FFLCH	Institute of Astronomy, Geophysics and Atmospheric Sciences	IAG
Institute of Geosciences	IGC	School of Agriculture Luiz de Queiróz	ESALQ
School of Pharmaceutical Sciences of Ribeirão Preto	FCFRP	School of Pharmaceutical Sciences	FCF
Physics Institute	IF	Institute of Mathematics and Statistics	IME
IQSC; EESC; IFSC Inter-Units Program	Inter IQSC ; EESC ; IFSC	Institute of Psychology	IP
School of Education	FE	School of Animal Science and Environmental Engineering	FZEA
Inter-Units in Agro-ecosystem Ecology-Esalq/ Cena	Ecoagroec	Nursing School of Ribeirão Preto	EERP
Science Teaching Physics Institute	Enscienc		

It is observed that the term environmental gains prominence over the others, followed by management, water, development, systems and Brazil. Also to be noted are the terms planning, metropolitan, industry, municipality, resources, risk and public. Among the other terms shown in the cloud, the highlighted terms indicate that many papers express concern about management and planning and seek to assess impacts and risks of various sizes, including at the metropolitan scale. Environmental conservation and climate change are also emphasized.

Themes of Rio+20 in USP theses/dissertations

As mentioned, professors were appointed, who acted as coordinators of sub-themes, all related to Rio+20. Each group sought to analyze more in depth their discussion topic, trying to identify knowledge gaps and advances in the period.

The article on Environmental Governance and Agenda 21 highlights these aspects at different scales: national and international. It also emphasizes complex issues such as solid waste management and its relation to health.

In the paper on green economy, readers will find an introduction to this concept, which still lacks consensus among economists. Then, the authors analyzed the production of Graduate programs focusing on the topic of energy and sustainability.

The study of climate change should have an interdisciplinary character, as rightly pointed out by the authors of the text below. The papers listed discussed issues such as control of greenhouse gas emissions, but also have an applied nature, thus contributing to mitigate global warming.

Finally, this is a first assessment of the vast production of Theses and Dissertations over nearly 20 years at USP, on topics related to socio-environmental issues. Many of the papers may be useful to the necessary revision of the lifestyle that prevails in our day, which directly involves the environmental conservation and its relation to new forms of economic production, either qualified by the word sustainable, as seen until recently, or by the word green, as highlighted by Rio+20. Anyway, it must be guided by social inclusion and reduced inequality in access to natural resources.

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Received on 14 Feb. 2012 and accepted on 24 Feb. 2012