# Universidade de São Paulo

## General information

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| **Institution** | Universidade de São Paulo |
| **Legal name** | Universidade de São Paulo |
| **Foundation year** | 1934 |
| **Name of the Director General or Head of the institution** | Prof. Marco Antonio Zago - Rector |
| **Brief description of the Scientific Mission of your institution** | To promote and develop all forms of knowledge, by means of research and teaching; and extend to the society services those are inseparable from teaching and research activities. |
| **Brief description of the vision of your institution** | USP, as a public University, always open to all schools of thought, will abide to the principles of freedom of expression, teaching and research |
| **Main objectives or lines of action** | USP has as its main objectives developing knowledge by means of research, extending the existing knowledge to the society to its benefit, and providing higher education aiming at forming people capable of doing research and teaching in all knowledge areas, and aiming at their qualification for professional activities. |
| **Biodiversity related objectives** | Given the breadth of USP areas of actuation, so are its biodiversity related objectives. They include develop new knowledge, extending the knowledge to society, and forming people in all themes and subjects pertinent to knowing, conserving, protecting and using biodiversity sustainably. |

# Universidade de São Paulo's contribution to the Strategic Plan for Biodiversity 2011-2020 and the Aichi Targets

| Objective / Aichi Target | | | Yes | Partially | No | NA | Main actions performed (for 2011-2016): |
|---|---|---|---|---|---|---|---|
| | | | Does your institution develop actions aimed to strengthen awareness, concern and knowledge about biodiversity? | | | | |
| **A** | **1** |  *Public awareness* | **X** | | | | -Several undergrad and grad courses focusing different views of BES<br>For instance, the Instituto de Biociências (IB) of USP offers a Biology course (Bachelor and Licentiate) for undergraduate students: http://www.ib.usp.br/en/education/undergraduate.html<br>The IB also offers five graduate programs (Master's degree and Ph.D.): http://www.ib.usp.br/en/education/graduate-programs.html<br>-Several outreach programs for laypeople (visits, general courses, contributions to the media...)<br>We have been developing actions for the public understanding of biodiversity, in a number of places, coordinated by the Research Nucleus for Education, Epistemology and Outreach of Evolution (EDEVO-Darwin), with the collaboration of the Faculty of Education, Biosciences Institute, and Museum of Zoology . See: http://www.mz.usp.br/?page_id=188. The scientific coordinator (Dr Nelio Bizzo – Bizzo@USP.BR) is an expert member of the Task Force for Capacity Building of the Intergovernmental Science Policy Platform on Biodiversity and Ecosystem Services.<br>The Observatory of Innovation and Competitiveness had some seminars on innovation on themes linked to biodiversity. They were transmitted live by USP IPTV and can be viewed at www.oic.nap.usp.br. In addition, the Research Center on Biodiversity and Computing (BioComp) has developed seminars on many aspects of biodiversity, including talks from the executive secretary of CBD, Dr Braulio Dias, and on the planetary health initiative, which can be viewed at www.biocomp.org.br. |

| Objective / Aichi Target | | | Yes | Partially | No | NA | Main actions performed (for 2011-2016): |
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| | | | | | | | Many publications have been issued by USP, on the theme, such as “A gestão da Amazonia” (The management of Amazonia) http://www.edusp.com.br/detlivro.asp?ID=3142868, “Para Mudar o future”(In order to Change the Future – free translation), http://www.edusp.com.br/detlivro.asp?ID=409721, among many others published by the Editora da USP – EDUSP. |
| | | | Do some of the activities that your institution carries out contribute to the valuation of biodiversity and ecosystem services, contributing to achieve poverty reduction and sustainable development? | | | | |
| | **2** |  *Valorization* | **X** | | | | Among others, there are research and outreach activities related to pollinators and pollination with a focus on valuation, increase the income of beekeepers and promote sustainable development. Also there are activities on the valuation of urban vegetation, especially trees. There are also research activities on medical entomology, dynamics of malaria transmission associated with biodiversity and ecosystem services, involving three programs at the School of Public Health:1. Professional MSc graduate program on Environment, Health and Sustainability with emphasis on environmental management and urban sustainability; management in environmental sanitation services; vigilance in environmental and labor health. 2. PhD Graduate program in Global Health and Sustainability, with emphasis on policies, systems and international institutions on global health and sustainable environment; and on sustainability, human displacements and contemporary ways of life.3. Professional MSc graduate program on Entomology in Public Health with a focus on taxonomic identification, ecology and control of arthropods of interest for public health, as well as epidemiology of diseases that involve those organisms. |
| | **3** | | Does your institution develop actions aimed at countering the effects of harmful incentives for biodiversity or promote the application of incentives with positive effects on biodiversity? | | | | |

| Objective / Aichi Target | | | Yes | Partially | No | NA | Main actions performed (for 2011-2016): |
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| | |  *Incentives* | **X** | | | | The book "A gestão da Amazonia" focuses on the management of that large biome in its multiple aspects. http://www.edusp.com.br/detlivro.asp?ID=3142868 At the School of Public Health, research is done in three lines, with direct relation to this target 3: environmental management and urban sustainability; management of urban ststems and technological innovation from a sustainability viewpoint; and vigilance in environmental and worker health. |
| | **4** |  *Sustainable Production* | Has your institution developed and/or promoted scientific knowledge and/or technology innovation that promote sustainable production and/or consumption (including within your institution)? | | | | |
| | | | **X** | | | | There are research and outreach activities about sustainable production in general and applied to specific production chains, such as agricultural produce, shoes, electronics, and about sustainable consumption (water and electrical energy – programs PURA and PURE: http://www.pura.usp.br/ http://www5.usp.br/servicos/programa-para-o-uso-eficiente-de-energia-eletrica-na-usp-pure/). These are carried out in many faculty and research groups at USP, such as the Laboratory on Sustainability (www.lassu.usp.br), the School of Public Health (www.fsp.usp.br). The Observatory of Innovation and Competitiveness we have promoted many seminars concerning innovation that leads to sustainable production. These specific seminars had themes like 1)The National Policy For Solid Wastes; 2)Comparison among EU and Brazilian policies for electronic recycling, investigating also the behavior of the same companies in Brazil and in the UK (research; MSc thesis; 3)Electric car and urban mobility;4)Innovation in pharma and cosmetics based on the use of Brazilian biodiversity; 5)Legal institutions for boosting innovation, including biodiversity regulations The University adopts a policy for sustainable purchase and for green computing. Many theses have been developed that related to this Target 4; they can be found at the USP Theses Portal. One example is the |

| Objective / Aichi Target | | | Yes | Partially | No | NA | Main actions performed (for 2011-2016): |
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| | | | | | | | one on the competitivity of the production chain of the Amazonian fish, “pirarucu”. http://www.teses.usp.br/teses/disponiveis/12/12139/tde-19052016-114414/pt-br.php |
| B | 5 |  *Habitat loss* | Has your institution carried out actions that contribute to a decrease in the rate of loss of natural habitats? | | | | |
| | | | X | | | | Many research and outreach activities on this subject. Examples include assessment (expert witness) of enterprises (expansion of the port of Sao Sebastião); subsidizing the creation and management of protected areas (UCs – conservation units); developing information systems to support management of biodiversity. |
| | 6 |  *Sustainable management of fishes and invertebrates* | Has your institution developed or implemented scientific knowledge and/or technology and innovation to promote the sustainable extraction and recovery of species of fish, invertebrates and aquatic plants, or that have contributed to reduce illegal fishing or incidental catch? | | | | |
| | | | X | | | | Research on aquaculture and fishing engineering. Assessments of the impact of fishing in natural marine communities. Research on algae production to avoid overexploitation. |
| | 7 |  *Sustainable primary sector* | Does your institution promote and contribute to the sustainable management of agricultural land, and/or farming of aquatic organisms, and/or forests? | | | | |
| | | | X | | | | Education, research and outreach programs on sustainable agriculture, aquaculture and forestry. A course on “Education in the Field and Agroecology: a methodological proposal for the development of the areas of settlement of land reform”, was given to rural leaders and teachers in an effort to form people in the concepts and practice of agroecology (by the School of Education). The Knowledge Center on Agribusiness, PENSA, http://pensa.org.br/ has a long history of working on different aspect of agribusiness, including sustainable production. The bioprospection of the chemical diversity of Brazilian biodiversity is one of the focuses of a publication http://rusp.scielo.br/scielo.php?script=sci_arttext&pid=S0103-99892011000200009&lng=pt. |
| | 8 | | Does your institution carry out actions to control, monitor and/or improve water | | | | |

| Objective / Aichi Target | | | Yes | Partially | No | NA | Main actions performed (for 2011-2016): |
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| | |  *Pollution reduction* | pollution, and/or ocean and coast pollution, and/or soil pollution, and/or solid waste pollution, and/or air pollution? | | | | |
| | | | **X** | | | | Education, research and outreach programs on pollution monitoring, control and mitigation in water, soils, and air. Research on prevention of soil and groundwater pollution (waste disposal sites), remediation of contaminated sites and beneficial reuse of waste. There are also many activities related the petroleum industry, such as safety and reliability of pipelines and risers in the petroleum industry, with applications of mathematical inverse techniques. A systematic review on how can urban policies on air quality help the mitigation of climate change is available at http://link.springer.com/article/10.1007/s11524-015-0007-8. |
| | **9** |  *Invasive species* | Does your institution develop actions aimed at the identification, prevention, control and eradication of exotic invasive species? | | | | |
| | | | **X** | | | | Coordination of a monitoring program of marine invasive species in Brazil and a program to eradicate invasive species in marine protected areas. Participation in the revision of the list of marine invasive species. Study of the potential invasion of *Bombus terrestris* (www.abelhaprocurada.com.br ), from Chile and Argentina. A program was developed by the Biosciences Institute, on the Management of a invasive palm tree at the Sao Paulo Campus http://www.ib.usp.br/sti-servicos/vpn-virtual-private-network/42-comissoes/reserva-florestal/103-manejo-de-palmeiras-invasoras-na-reserva-florestal-do-ib-usp.html.<br>The University has its own policy intended to propose and start a plan to combat invasive exotic species. |
| | **10** |  *Pressures on vulnerable ecosystems* | Does your institution develop scientific knowledge and/or technology and innovation to reduce the anthropogenic pressure factors and maintain integrity and functioning of coral reefs and/or other ecosystems vulnerable to climate change? | | | | |
| | | | **X** | | | | Research and outreach in coral reef areas (broad sense), in areas such as the rhodolith banks along the NE-SE coast, monitoring of coral reef environment along the coast (e.g. ReBentos), identification of new coral reef areas (e.g. Amazon river mouth) and deep |

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|---|---|---|---|---|---|---|---|
| | | | | | | | coral reef banks, including fishing issues. Knowledge of the microclimate, water and energy functionality in restored forests and native cloud forests in headwaters´ catchments, addressed to learn the impact of climate change on the water availability. Knowledge to understand the climate drivers on flight of stingless bees, addressed to understand potential impact of climate change on pollination. |
| C | 11 |  *Protected Areas* | Does your institution develop scientific knowledge and/or technology and innovation that promote or contribute the efficient management, representativeness, connectivity and integration landscape of protected areas (terrestrial, and/or marine and coastal) or the creation/incorporation of new public, private or community conservation areas? | | | | |
| | | | **X** | | | | In marine environment, such as in the Alcatrazes refuge of wildlife, and in volcanic islands related to PAs. Development of information system to collect and manage monitoring data in the PAs managed by ICMBio. A study on the "Amazon Fund: financing deforestation avoidance", can be found at http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0080-21072014000200006 |
| | 12 |  *Threatened Species* | Does your institution develop scientific knowledge and/or technology and innovation to promote and contribute to the effective protection of threatened species? | | | | |
| | | | **X** | | | | USP contributes not only in ecophisiological, behavioral and population dynamics research. Teachers and researchers from USP participate in meetings and working groups responsible for the Brazilian list of endangered species and for producing National Action Plans for the Conservation of endangered species, for many taxonomic groups. |
| | 13 |  *Genetic diversity* | Does your organization develop scientific knowledge and/or technology and innovation aimed to maintain native genetic diversity and the wild relatives of cultivated plant species and/or livestock and domesticated animals? | | | | |
| | | | | | | **X** | |
| D | 14 |  | Has your institution developed scientific knowledge and/or technology and innovation for the restoration and recovery of ecosystem services taking into consideration the needs of women, indigenous and local communities and the poor and vulnerable? | | | | |

| Objective / Aichi Target | | | Yes | Partially | No | NA | Main actions performed (for 2011-2016): |
|---|---|---|---|---|---|---|---|
| | | *Restoration* | X | | | | There are a number of activities developed on restoration at the Biosciences Institute (for instance at http://ecologia.ib.usp.br/lepac/), and the School of Agriculture (www.esalq.usp.br). |
| | 15 |  *Resilience* | Has your institution developed scientific, technical and/or technological actions of ecological restoration and rehabilitation? How many actions since 2011 and is the approximate restored area of degraded ecosystems within the framework of these actions? | | | | |
| | | | X | | | | List of actions:<br>Research on degraded areas on pasture and sugar cane soils.<br>A study on resilience of neotropical secondary forests, can be found at http://www.nature.com/nature/journal/v530/n7589/full/nature16512.html<br>Restored area: |
| | 16 |  *Nagoya Protocol* | Have you heard of the Nagoya Protocol, and has your institution developed scientific, technical and/or technological actions linked to it? | | | | |
| | | | | | | X | |
| E | 17 |  *NBSAP update* | Has your institution collaborated in the elaboration and/or implementation of the National Biodiversity Strategy of its country, or any other biodiversity strategy at a sub-national level or equivalent? | | | | |
| | | | X | | | | Yes, both at the national and state level. |
| | 18 |  *Traditional Knowledge* | Does your institution integrate traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity? | | | | |
| | | | X | | | | Eliciting and integrating ILK has been the focus of many researchers; one of them prof Manuela Carneiro da Cunha, is a member of the IPBES task force on ILK. We have been developing curriculum policies which include indigenous knowledge and knowledge about biodiversity and ecosystem services, especially in the São Paulo Educational Authority, coordinated by the Research Nucleus for Education, Epistemology and Outreach of Evolution (EDEVO-Darwin), with the collaboration of the Faculty of Education, Biosciences Institute, and Museum of Zoology . See: |

<table>
<tr><th colspan="3">Objective / Aichi Target</th><th>Yes</th><th>Partially</th><th>No</th><th>NA</th><th>Main actions performed (for 2011-2016):</th></tr>
<tr><td rowspan="4"></td><td></td><td></td><td></td><td></td><td></td><td></td><td>https://www.researchgate.net/publication/293794132_A_New_Science_Curriculum_for_Basic_Education</td></tr>
<tr><td rowspan="4">19</td><td rowspan="4">Knowledge, science and technology</td><td colspan="6">Does your institution generate scientific, technical and/or technological information on biodiversity? How does your institution consider that the availability of useful information on biodiversity (assessment, monitoring, inventories, studies, etc.) is in your country?</td></tr>
<tr><td>Yes</td><td>Partially</td><td>No</td><td rowspan="3">NA</td><td rowspan="3">Examples of information generated in conservation, values, functioning, status, trends, impacts of loss, sustainable use or others.<br>The contribution of USP in this respect encompasses a broad range of data and information, from species occurrence data, to population monitoring, impacts, valuation, trends. Assessment of genetic variability of natural and captive populations, identification of genetically differentiated populations of endangered and not endangered species, etc.</td></tr>
<tr><td>X</td><td></td><td></td></tr>
<tr><td>Sufficient</td><td>Limited</td><td>Scarce</td><td rowspan="2">Indicate relevant gaps of information and information available and its sources.<br>Although there is a lot of information and data, there is no doubt that we still have a long way to go reach an adequate level of sampling, for instance. In the marine environment, the greater gaps are in the N-NE coast, and in all deep-sea areas.<br>For various taxa we do not know their geographic distribution, habitat, dispersion capacity, diet, how they interact with other members of their community, how they will respond to global climate change.</td></tr>
<tr><td></td><td>X</td><td></td></tr>
<tr><td rowspan="2">20</td><td rowspan="2">Funding</td><td colspan="6">What is the approximate percentage of your institution’s annual budget destined for the implementation of scientific, technical and/or technological actions aimed for the conservation and sustainable use of biodiversity and ecosystem services and does your institution have fundraising strategies for this purpose?</td></tr>
<tr><td></td><td></td><td></td><td>X</td><td>We do not have accurate figures for our budget destined to this area. USP has been successful in obtaining funds from a variety of sources, from local research funding agencies, to international agencies, private companies, partnerships with governmental bodies, etc.</td></tr>
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