

## TC DOCUMENT

### I. Basic Information

▪ Country/Region:	Regional
▪ TC Name:	Natural and human systems of the Amazon basin: An interactive map to raise public awareness and for informed policy making
▪ TC Number:	RG-T2532
▪ Team Leader/Members:	Team leader: Michele Lemay (INE/RND), Team members: Maria Claudia Perazza (INE/RND), Enrique Ibarra (INE/RND), Lisa Sofia Restrepo (INE/RND), and Betina Tirelli Henning (LEG/SGO)
▪ Taxonomy (Operational Support, Client Support, or Research & Dissemination):	Research & Dissemination
▪ Date of TC Abstract authorization:	January 7, 2015
▪ Beneficiary:	Brasil, Perú, Colombia, Bolivia, Venezuela, Ecuador, Guyana
▪ Executing Agency:	Inter-American Development Bank (IDB) through the Environment, Rural Development and Disaster Risk Management Division of the Infrastructure and Environment Department (INE/RND)
▪ Donors providing funding:	BIO fund
▪ IDB Funding Requested:	US\$400,000
▪ Local counterpart funding, if any:	No
▪ Disbursement period:	12 months (execution period: 12 months)
▪ Required start date:	March 27, 2015
▪ Types of consultants:	Firm
▪ Prepared by Unit:	INE/RND
▪ Unit of Disbursement Responsibility:	INE/RND
▪ Included in Country Strategy (y/n);	No
▪ TC included in CPD (y/n):	No
▪ GCI-9 Sector Priority:	Protect the environment, respond to climate change, promote renewable energy and ensure food security

## II. Objectives and justification

- 2.1 The Latin America and Caribbean (LAC) Region has been deemed the superpower of biodiversity because it is the region with the most natural capital in the world.<sup>1</sup> The Amazon forest is the largest and most diverse tropical forest in the world.<sup>2</sup> The Amazon basin produces over two thirds of all fresh water on earth, 20% of the earth's oxygen, and it is home to an extraordinary array of – land and fresh water – biodiversity. The Amazon basin has an area of approximately 2.5 million hectares, equivalent to 40% of South America's total land area, and if superimposed on the USA, it would cover nearly all of the 48 contiguous states.<sup>3</sup>
- 2.2 It is widely recognized that natural capital and its associated environmental services (although not fully captured in market transactions), are vital elements of economic performance, and without them economies would come to a grinding halt.<sup>4</sup> The Amazon Basin is the largest river system in the world, unique in the size and abundance of its forests, flooded forests, floodplain lakes, and other wetlands. These rivers and floodplains are critical to urban and rural livelihoods across the Amazon as they deliver ecosystem services such as: (i) supporting services (soil formation, water, biodiversity; for example, between 200-300 tree species can be found in one hectare of the Amazon, more than in the entire European Union); (ii) regulating services (e.g., hydrological services, nutrient retention, pollination). For example, the annual value of soil erosion prevention in the Amazon is estimated around \$238 ha per year; (iii) provisioning services (e.g. timber, non-timber forest products- NTFPs). The annual commercial value of NTFPs in the Brazilian Amazon<sup>5</sup> has been estimated at around \$100 million for 2005; and (iv) cultural services (non-use values, recreation, religious).<sup>6</sup> These environmental services are of significant importance not only at the local level but at the regional and global level as well.<sup>7,8</sup>
- 2.3 Large-scale infrastructure development (such as hydroelectric dams, roads, and pipelines), agricultural expansion and selective logging are significant drivers of the loss and degradation of natural resources in the Amazon.<sup>9</sup> In the case of Brazil, from the late 1970s to the early 1990s, the development of highways to link the Amazon to domestic markets in the southeast and the northeast of the country enabled human encroachment in areas previously inaccessible. Human

---

<sup>1</sup> Bovarnick, A., F. Alpizar, C. Schnell (eds.). 2010. Latin America and the Caribbean: A biodiversity superpower. United Nations Development Program (UNDP) and United Nations Environment Program (UNEP). 2010. Atlas of Our Changing Environment: Latin America and the Caribbean, UNEP.

<sup>2</sup> Lima, E., F. Merry, D. Nepstad, Gregory Amacher, C. Azevedo-Ramos, P. Lefebvre and F. R. Jr. 2006. "Searching for sustainability: Forest, smallholders, and the trans-Amazon highway." *Environment* 48(1): 26-38.

<sup>3</sup> See: <https://www.wcupa.edu/aceer/amigos/cd/rainforest.htm>

<sup>4</sup> Costanza, R., R. d'Arge, R. d. Groot, S. Farber, M. Grasso, B. Hannon, K. Limburg, S. Naeem, R. V. O'Neill, J. Paruelo, R. G. Raskin, P. Sutton and M. v. d. Belt. 1997. "The value of the world's ecosystem services and natural capital." *Nature* 387(6630): 253-260.

<sup>5</sup> Food, oil products, fibers, rubber, aromatics and medicines, among others.

<sup>6</sup> Verweij, P., M. Schouten, P. v. Beukering, J. Triana, K. v. d. Leeuw and S. Hess. 2009. Keeping the Amazon forests standing: A matter of values. WWF Netherlands. Zeist, The Netherlands. Available from: [http://d2ouvy59p0dg6k.cloudfront.net/downloads/wmf\\_amazonerapport\\_def.pdf](http://d2ouvy59p0dg6k.cloudfront.net/downloads/wmf_amazonerapport_def.pdf).

<sup>7</sup> Barthem, R. B., P. Charvet-Almeida, L. F. A. Montag and A. E. Lanna. 2012. Global International Waters Assessment: Amazon Basin. GIWA Regional assessment 40b. UNEP/University of Kalmar. Kalmar, Sweden.

<sup>8</sup> Case, M. 2007. Climate change impacts in the Amazon: Review of scientific literature. WWF. Available from: [http://assets.panda.org/downloads/amazon\\_cc\\_impacts\\_lit\\_review\\_final\\_2.pdf](http://assets.panda.org/downloads/amazon_cc_impacts_lit_review_final_2.pdf).

<sup>9</sup> Carvalho, G. O. 2006. "Environmental resistance and the politics of energy development in the Brazilian Amazon." *The Journal of Environment & Development* 15(3): 245-268.

encroachment and deforestation were aided by government policies which encouraged land use change in the Brazilian Amazon. This process of forest loss was also aided by large public investment programs for the construction of dams, hydropower plants and transport infrastructure for mining operations.<sup>10</sup>

- 2.4 Public – sectoral, uncoordinated – policies and market forces, such as the demand for timber, are significant underlying causes of the loss of these resources across the Amazon.<sup>11</sup> Between 1990 and 2005, approximately 55.8 million hectares were deforested in the Amazon, accounting for roughly 35% of emissions from global tropical deforestation.<sup>12</sup> Aquatic and terrestrial ecosystems, as well as societal wellbeing, will increasingly be impacted by changes in the hydrological cycle caused by dam and road projects, and by upland and floodplain deforestation associated with land use change, and by climate change.<sup>13,14</sup>
- 2.5 The impact on natural capital of additional infrastructure – particularly roads that enable agriculture, human settlements and other productive activities – is assessed as highly significant in research literature.<sup>15,16</sup> This highlights the need to inform policy decision makers (and civil society in general) about the richness, importance, and interconnectedness, of natural resources and ecosystems found across the Amazon basin, as well as on the impact different policies have on the Amazon's natural capital. The challenge is then to make information available to legislatures in a holistic, concise, yet rich and user friendly manner to inform policy decision making.
- 2.6 The development of maps for research purposes in the Amazon – both policy and biophysical – is necessarily theme-specific such as assessing deforestation and forest degradation rates,<sup>17</sup> modelling of conservation efforts to protect watersheds, biodiversity and mitigate climate change,<sup>18</sup> or predict deforestation according to demographic factors, variables affecting accessibility to forests (notably transport infrastructure), and land-use suitability for human settlements and agriculture.<sup>19</sup> In spite

---

<sup>10</sup> Lima, E., F. Merry, D. Nepstad, Gregory Amacher, C. Azevedo-Ramos, P. Lefebvre and F. R. Jr. 2006. "Searching for sustainability: Forest, smallholders, and the trans-amazon highway." *Environment* 48(1): 26-38.

<sup>11</sup> Contreras-Hermosilla, A. 2010. "People, governance and forests: The stumbling blocks in forest governance reform in Latin America." *Forests* 2(1): 168-199.

<sup>12</sup> Wertz-Kanounnikoff, S., M. Kongphan-Apirak and S. Wunder. 2008. Reducing forest emissions in the Amazon Basin: A review of drivers of land-use change and how payments for environmental services (PES) schemes can affect them. Center for International Forestry Research (CIFOR). Bogor, Indonesia. Available from: <https://cgispace.cgiar.org/handle/10568/19997>.

<sup>13</sup> Ibid.

<sup>14</sup> Chomitz, K. M. 2007. At loggerheads? Agricultural expansion, poverty reduction and environment in the tropical forests. The World Bank. Washington DC. Available from: <https://openknowledge.worldbank.org/handle/10986/7190>.

<sup>15</sup> Soares-Filho, B. S., D. C. Nepstad, L. M. Curran, G. C. Cerqueira, R. A. Garcia, C. A. Ramos, E. Voll, A. McDonald, P. Lefebvre and P. Schlesinger. 2006. "Modelling conservation in the Amazon Basin." *Nature* 440(23): 520-523.

<sup>16</sup> Oliveira, P. J. C., G. P. Asner, D. E. Knapp, A. Almeyda, R. Galván-Gildemeister, S. Keene, R. F. Raybin and R. C. Smith. 2007. "Land-use allocation protects the Peruvian Amazon." *Science* 317: 1233-1236.

<sup>17</sup> Skole, D. and C. Tucker. 1993. "Tropical deforestation and habitat fragmentation in the Amazon: Satellite data from 1978 to 1988." *Science* 260(5116): 1905-910.

<sup>18</sup> Soares-Filho, B. S., D. C. Nepstad, L. M. Curran, G. C. Cerqueira, R. A. Garcia, C. A. Ramos, E. Voll, A. McDonald, P. Lefebvre and P. Schlesinger. 2006. "Modelling conservation in the Amazon basin." *Nature* 440(7083): 520-523.

<sup>19</sup> Laurance, W. F., A. K. M. Albernaz, G. Schroth, P. M. Fearnside, S. Bergen, E. M. Venticinque and C. Da Costa. 2002. "Predictors of deforestation in the Brazilian Amazon." *Journal of Biogeography* 29(5-6): 737-748.

of their relevance, the technical nature of these academic products is difficult to access and understand for policy makers and the general public.

- 2.7 Although there are many maps depicting the political boundaries and natural resources of the Amazon basin, they do not provide comprehensive information about the topics discussed in the above paragraphs. Even though some maps are presented in an interactive way,<sup>20</sup> they lack the information layers necessary to appropriately inform decision makers, or users wanting to gain detailed knowledge of the Amazon basin in terms of not only its natural resources, but also of productive activities, their impact on natural capital, and the institutional frameworks ruling them.
- 2.8 The objective of the proposed TC is to produce information materials in the form of an annotated map (in print and digital format) laying out the terrestrial and hydrological resources of the Amazon basin to inform policy makers and society at large. It will include several layers of information depicting biophysical resources (terrestrial and hydrological), major infrastructure projects, human productive activities as well as the basic institutional frameworks underpinning different productive activities (e.g. hydropower, agriculture, logging, mining, etc.). The digital version of the map will enable the user to compare, contrast and combine data on the status of existing natural resources along the basin, the productive activities that take place in it, how they impact the existing natural capital, and the institutional frameworks that govern the use of natural resources. Both maps will be available in English, Spanish and Portuguese.
- 2.9 The proposed TC will contribute to the GCI-9 lending program priority target (e) to protect the environment, respond to climate change, promote renewable energy and ensure food security, as the TC will focus on the provision of user-friendly information on the richness and diversity of natural resources found in the Amazon basin. The proposed TC is also aligned with the IDB's Biodiversity and Ecosystem Services Program, as it will contribute to three of its four components: (i) assessing and integrating the economic value and importance of biodiversity and ecosystem services into strategic economic sectors; (ii) investing in priority regional ecosystem conservation; and (iii) strengthening and fostering environmental governance.

### III. Description of activities/components and budget

- 3.1 **Activity 1: Editorial (printed version).** The printed version of the map will have two sides, A and B, and will be elaborated by the National Geographic Magazine (NGM).<sup>21</sup> Side A will focus on both terrestrial and aquatic resources, and will illustrate the waterways comprising the Amazon basin as well as man-made infrastructure (such as hydrological dams). The map will be annotated with explanations of selected water projects, biodiversity hotspots and hydraulic chokepoints. Information on terrestrial resources will include forest cover, deforestation, protected areas, indigenous reserves, road networks and oil and gas pipelines. The map will be annotated with explanations of selected reserves, energy resources, and land transportation corridors. Side B of the map will focus on ecosystemic features of the Amazon basin, including a cross-section view from the Andes to the sea, highlighting the diversity of flora and fauna of the basin.

---

<sup>20</sup>See for example: <http://www.internationalrivers.org/resources/principal-dams-brazil-4582>; or <http://ngm.nationalgeographic.com/2007/01/amazon-rain-forest/amazon-map-interactive>

<sup>21</sup> See paragraph 4.3.

- 3.2 **Activity 2: Editorial (digital version).** The digital version of the map will be constructed (also by NGM) in a layered format.<sup>22</sup> Three digital layers are envisaged: The first one will allow the user to manipulate the data, enabling comparison, contrast and combination of information in interest areas. The second layer will take the user through a narrative illustrating data-driven spatial stories. The third layer of the map will include a description of the institutional frameworks (laws, regulations and main actors) that rule productive activities in the basin. This compilation will allow users to deepen their understanding of how productive sectors are geared towards the – often conflicting – uses of natural resources in the Amazon basin.
- 3.3 **Activity 3: Dissemination.** The distribution plan foresees a worldwide audience for printed materials of more than five million readers. This includes English, Spanish and Portuguese readers. Distribution of materials to general audiences will be in charge of National Geographic and its partners: Editora Abril and Editorial Televisa. No contractual obligation will arise between Editorial Abril and/or Editorial Televisa and the IDB.<sup>23</sup> Distribution of materials in Brazil will be done through 'Editora Abril,' and in the rest of Latin America through Editorial Televisa (both partners of National Geographic). The IDB will also engage in the dissemination of materials (both printed and digital) through its network to reach decision makers in key ministries and legislatures. The IDB will have at its disposition 2,500 printed copies in Spanish and 2,000 in Portuguese for distribution among its clients. The map will also be promoted through social media (e.g. BIO's Twitter account), BIO's and the IDB's web page, as well as the web pages and social media accounts of National Geographic and its partners – including the Moore Foundation – in an effort to maximize the dissemination of the maps (both printed and digital), and reduce the risk of sub-utilization of the products.

---

<sup>22</sup> See paragraph 4.3.

<sup>23</sup> See paragraph 4.3.

**Table 1. Indicative Results Matrix**

ACTIVITY	DESCRIPTION	EXPECTED OUTPUTS	EXPECTED RESULTS
<b>1. Editorial: Data research, acquisition, compilation, and edit of all map elements (print and digital)</b>	<ul style="list-style-type: none"> <li>Research, writing and editing of materials</li> <li>In-depth review of primary and secondary sources for maps</li> <li>Acquisition of data needed to create maps</li> <li>Compilation of thematic data on print map and digital devices</li> <li>Review of data compilation by editorial team assisted by outside experts</li> <li>Research and creation of all illustration elements</li> <li>Acquisition of data needed to create illustrations</li> <li>Approval of all illustrations</li> <li>Review of accuracy of all illustrations and accompanying labels by editorial team assisted by outside experts</li> </ul>	<p>Reliable data for map and illustrations created and approved</p> <p>Accurate illustrations explaining the importance of the resources of the Amazon basin</p>	Innovative materials available to increase awareness of policy makers about the relevance of natural capital in the Amazon basin
<b>2. Digital map development</b>	<ul style="list-style-type: none"> <li>Production of additional assets/layers for digital version of supplement map</li> </ul>	Enriched digital version of the map	
<b>3. Production</b>	<ul style="list-style-type: none"> <li>Printing</li> <li>Distribution</li> <li>Translation</li> <li>Web-hosting</li> </ul>	Print map and digital component design layouts	

- 3.4 The total cost of this technical cooperation has been estimated at US\$400,000 to be financed by the BIO fund.

**Table 2. Indicative Budget (US\$)**

Activity/Component	Description	IDB/Fund Funding	Counterpart Funding	Total Funding
<b>Activities</b>				
<b>Editorial (NGM)</b>	Editorial requirements for development of print supplement and digital map	100,000	-	100,000
<b>Digital map development (NGM)</b>	Development/production of additional layers for digital version of map	75,000	-	75,000
<b>Production (NGM)</b>	Costs for mechanics and materials of printing and distribution, translation services, and local Latin America web-hosting	225,000	-	225,000
<b>TOTAL</b>		<b>US\$400,000</b>	<b>-</b>	<b>US\$400,000</b>

#### **IV. Executing agency and execution structure**

- 4.1 Given the strategic objectives of the TC and its regional nature, the TC will be executed by the IDB through INE/RND. Additionally, the Bank is able to create capacity, serve as a funder of knowledge and innovation, and impact policy on multiple scales within the Region, thus making the regional coordination of the IDB a necessary aspect of this TC.
- 4.2 The Bank will contract individual consultants, consulting firms and non-consulting services in accordance with current Bank procurement policies and procedures.
- 4.3 The project team recommends the single source selection method (SSS) to contract the National Geographic based on its extensive experience producing high quality – in-depth researched – materials as the ones described above.
- 4.4 Due to the research and dissemination nature of this TC, intellectual property rights will be shared between the IDB and National Geographic.

#### **V. Major issues**

- 5.1 No major issues/risks have been identified regarding the execution of this TC.

#### **VI. Exceptions to Bank policy**

- 6.1 There are no exceptions to Bank policy.

#### **VII. Environmental and Social Strategy**

- 7.1 It is not anticipated that the activities to be financed in this TC will have negative direct or indirect social or environmental effects. Therefore the team considers that, according to the Bank's Environment and Safeguards Compliance Policy (OP-703), this operation has been classified as "C": (i) no environmental or social risks; and (ii) direct contribution to solve an environmental issue.

#### **Required Annexes:**

- [Annex I: Terms of Reference](#)
- [Annex II: Procurement Plan](#)

Pedro Martel  
Chief (a.i.)  
Environment, Rural Development Disaster Risk  
Management Division  
INE/RND



## ENVIRONMENT, RURAL DEVELOPMENT AND DISASTER RISK MANAGEMENT (INE/RND)

### TERMS OF REFERENCE

#### I. Background

- 1.1 The Latin America and Caribbean (LAC) Region has been deemed the superpower of biodiversity because it is the region with the most natural capital in the world.<sup>1</sup> The Amazon forest is the largest and most diverse tropical forest in the world.<sup>2</sup> The Amazon basin produces over two thirds of all fresh water on earth, 20% of the earth's oxygen, and it is home to an extraordinary array of – land and fresh water – biodiversity. The Amazon basin has an area of approximately 2.5 million hectares, equivalent to 40% of South America's total land area, and if superimposed on the USA, it would cover nearly all of the 48 contiguous states.<sup>3</sup>
- 1.2 It is widely recognized that natural capital and its associated environmental services (although not fully captured in market transactions), are vital elements of economic performance, and without them economies would come to a grinding halt.<sup>4</sup> The Amazon Basin is the largest river system in the world, unique in the size and abundance of its forests, flooded forests, floodplain lakes, and other wetlands. These rivers and floodplains are critical to urban and rural livelihoods across the Amazon as they deliver ecosystem services such as: 1-Supporting services (soil formation, water, biodiversity; for example, between 200-300 tree species can be found in one hectare of the Amazon, more than in the entire European Union); 2- Regulating services (e.g., hydrological services, nutrient retention, pollination). For example, the annual value of soil erosion prevention in the amazon is estimated around \$238 ha per year. 3- Provisioning services (e.g. timber, non-timber forest products, NTFPs). The annual commercial value of NTFPs in the Brazilian Amazon<sup>5</sup> has been estimated at around \$100 million for 2005; 4- Cultural services (non-use values, recreation, religious).<sup>6</sup> These environmental services are of significant importance not only at the local level but at the regional and global level as well.<sup>7,8</sup>
- 1.3 Large-scale infrastructure development (such as hydroelectric dams, roads, and pipelines), agricultural expansion and selective logging are significant drivers of the loss and degradation of

---

<sup>1</sup> Bovarnick, A., F. Alpizar, C. Schnell (eds.). 2010. Latin America and the Caribbean: A biodiversity superpower. United Nations Development Program (UNDP) and United Nations Environment Program (UNEP). 2010. Atlas of Our Changing Environment: Latin America and the Caribbean, UNEP.

<sup>2</sup> Lima, E., F. Merry, D. Nepstad, Gregory Amacher, C. Azevedo-Ramos, P. Lefebvre and F. R. Jr. 2006. "Searching for sustainability: Forest, smallholders, and the trans-amazon highway." *Environment* 48(1): 26-38.

<sup>3</sup> See: <https://www.wcupa.edu/aceer/amigos/cd/rainforest.htm>

<sup>4</sup> Costanza, R., R. d'Arge, R. d. Groot, S. Farberk, M. Grasso, B. Hannon, K. Limburg, S. Naeem, R. V. O'Neill, J. Paruelo, R. G. Raskin, P. Suttonkk and M. v. d. Belt. 1997. "The value of the world's ecosystem services and natural capital." *Nature* 387(6630): 253-260.

<sup>5</sup> Food, oil products, fibers, rubber, aromatics and medicines, among others.

<sup>6</sup> Verweij, P., M. Schouten, P. v. Beukering, J. Triana, K. v. d. Leeuw and S. Hess. 2009. Keeping the Amazon forests standing: A matter of values. WWF Netherlands. Zeist, The Netherlands. Available from: [http://d2ouvy59p0dg6k.cloudfront.net/downloads/wnf\\_amazonerapport\\_def.pdf](http://d2ouvy59p0dg6k.cloudfront.net/downloads/wnf_amazonerapport_def.pdf).

<sup>7</sup> Barthem, R. B., P. Charvet-Almeida, L. F. A. Montag and A. E. Lanna. 2012. Global International Waters Assessment: Amazon Basin. GIWA Regional assessment 40b. UNEP/University of Kalmar. Kalmar, Sweden.

<sup>8</sup> Case, M. 2007. Climate change impacts in the Amazon: Review of scientific literature. WWF. Available from: [http://assets.panda.org/downloads/amazon\\_cc\\_impacts\\_lit\\_review\\_final\\_2.pdf](http://assets.panda.org/downloads/amazon_cc_impacts_lit_review_final_2.pdf).

natural resources in the Amazon.<sup>9</sup> In the case of Brazil, from the late 1970s to the early 1990s, the development of highways to link the Amazon to domestic markets in the southeast and the northeast of the country enabled human encroachment in areas previously inaccessible. Human encroachment and deforestation were aided by government policies which encouraged land use change in the Brazilian Amazon. This process of forest loss was also aided by large public investment programs for the construction of dams, hydropower plants and transport infrastructure for mining operations.<sup>10</sup>

- 1.4 Public – sectoral, uncoordinated – policies and market forces, such as the demand for timber, are significant underlying causes of the loss of these resources across the Amazon.<sup>11</sup> Between 1990 and 2005, approximately 55.8 million hectares were deforested in the Amazon, accounting for roughly 35% of emissions from global tropical deforestation.<sup>12</sup> Aquatic and terrestrial ecosystems, as well as societal wellbeing, will increasingly be impacted by changes in the hydrological cycle caused by dam and road projects, and by upland and floodplain deforestation associated with land use change, and by climate change.<sup>13,14</sup>
- 1.5 The impact on natural capital of additional infrastructure – particularly roads that enable agriculture, human settlements and other productive activities – is assessed as highly significant in research literature.<sup>15,16</sup> This highlights the need to inform policy decision makers (and civil society in general) about the richness, importance, and interconnectedness, of natural resources and ecosystems found across the Amazon basin, as well as on the impact different policies have on the Amazon's natural capital. The challenge is then to make information available to legislatures in a holistic, concise, yet rich and user friendly manner to inform policy decision making.
- 1.6 Although there are many maps depicting the political boundaries and natural resources of the Amazon basin, they do not provide comprehensive information about the topics discussed in the above paragraphs. Even though some maps are presented in an interactive way,<sup>17</sup> they lack the information layers necessary to appropriately inform decision makers, or users wanting to gain detailed knowledge of the Amazon basin in terms of not only its natural resources, but also of productive activities, their impact on natural capital, and the institutional frameworks ruling them.

---

<sup>9</sup> Carvalho, G. O. 2006. "Environmental resistance and the politics of energy development in the Brazilian Amazon." *The Journal of Environment & Development* 15(3): 245-268.

<sup>10</sup> Lima, E., F. Merry, D. Nepstad, Gregory Amacher, C. Azevedo-Ramos, P. Lefebvre and F. R. Jr. 2006. "Searching for sustainability: Forest, smallholders, and the trans-amazon highway." *Environment* 48(1): 26-38.

<sup>11</sup> Contreras-Hermosilla, A. 2010. "People, governance and forests: The stumbling blocks in forest governance reform in Latin America." *Forests* 2(1): 168-199.

<sup>12</sup> Wertz-Kanounnikoff, S., M. Kongphan-Apirak and S. Wunder. 2008. Reducing forest emissions in the Amazon Basin: A review of drivers of land-use change and how payments for environmental services (PES) schemes can affect them. Center for International Forestry Research (CIFOR). Bogor, Indonesia. Available from: <https://cgspace.cgiar.org/handle/10568/19997>.

<sup>13</sup> Ibid.

<sup>14</sup> Chomitz, K. M. 2007. At loggerheads? Agricultural expansion, poverty reduction and environment in the tropical forests. The World Bank. Washington DC. Available from: <https://openknowledge.worldbank.org/handle/10986/7190>.

<sup>15</sup> Soares-Filho, B. S., D. C. Nepstad, L. M. Curran, G. C. Cerqueira, R. A. Garcia, C. A. Ramos, E. Voll, A. McDonald, P. Lefebvre and P. Schlesinger. 2006. "Modelling conservation in the Amazon Basin." *Nature* 440(23): 520-523.

<sup>16</sup> Oliveira, P. J. C., G. P. Asner, D. E. Knapp, A. Almeyda, R. Galván-Gildemeister, S. Keene, R. F. Raybin and R. C. Smith. 2007. "Land-use allocation protects the Peruvian Amazon." *Science* 317: 1233-1236.

<sup>17</sup> See for example: <http://www.internationalrivers.org/resources/principal-dams-brazil-4582> ; or <http://ngm.nationalgeographic.com/2007/01/amazon-rain-forest/amazon-map-interactive>

- 1.7 The Inter-American Development Bank launched the Biodiversity and Ecosystem Services Program in March 2013 in Panama. The general objective of the Program is to create opportunities and utilize the comparative advantage of the region in biodiversity and ecosystem services for sustainable and inclusive development. Informing policy decision makers in regions with ecosystems of regional and global significance for biodiversity conservation and ecosystem services – such as the Amazon basin – is a critical aspect of the Biodiversity and Ecosystem Services Program.
- 1.8 The IDB is seeking an internationally-recognized specialized organization to: (i) produce an annotated map of the Amazon Basin and; (ii) produce an annotated digital map of the Amazon basin. The digital version of the map must enable the user to compare, contrast and combine data on; the status of existing natural resources along the basin, the productive activities that take place in it, how they impact the existing natural capital, and the institutional frameworks that govern the use of natural resources.

## **II. Consultancy objective**

- 2.1 The objective of this consultancy is to produce information materials in the form of an annotated map (printed and digital) laying out the terrestrial and hydrological resources of the Amazon basin to inform policy makers and society at large. The map will include several layers of information depicting biophysical resources (terrestrial and hydrological), major infrastructure projects, human productive activities as well as the basic institutional frameworks defining the rules under which different productive activities (e.g. hydropower, agriculture, logging, mining, etc.) take place. Both maps will be available in English, Spanish and Portuguese.

## **III. Tasks**

- 3.1 The activities to be carried out by this consultancy include three main tasks:
- Task 1: Editorial, printed version including data research, acquisition, compilation, and edit of all map elements. The printed version of the map will have two sides, A and B. Side A will focus on both terrestrial and aquatic resources, and will illustrate the waterways comprising the Amazon basin as well as man-made infrastructure (such as hydrological dams). The map will be annotated with explanations of selected water projects, biodiversity hotspots and hydraulic chokepoints. Information on terrestrial resources will include forest cover, deforestation, protected areas, indigenous reserves, road networks and oil and gas pipelines. The map will be annotated with explanations of selected reserves, energy resources, and land transportation corridors. Side B of the map will focus on ecosystemic features of the Amazon basin, including a cross-section view from the Andes to the sea, highlighting the diversity of flora and fauna of the basin. Specific activities envisaged for this task include:

- Research, writing and editing of materials
  - In-depth review of primary and secondary sources for maps
  - Acquisition of data needed to create maps
  - Compilation of thematic data on print map and digital devices
  - Review of data compilation by editorial team assisted by outside experts
  - Research and creation of all illustration elements
  - Acquisition of data needed to create illustrations
  - Approval of all illustrations
  - Review of accuracy of all illustrations and accompanying labels by editorial team assisted by outside experts
- Task 2: Editorial, digital map development (enriched digital version of the map). The production (compilation) of additional assets/layers for the digital version of the supplement map will allow users to deepen their understanding of how productive sectors are geared towards the – often conflicting – uses of natural resources in the amazon basin.
  - The digital version of the map will be constructed in a layered format. Three digital layers are envisaged:
    - a. The first one will allow the user to manipulate the data, enabling comparison, contrast and combination of information in interest areas.
    - b. The second layer will take the user through a narrative illustrating data-driven spatial stories.
    - c. The third layer of the map will include a description of the institutional frameworks (laws, regulations and main actors) that rule productive activities in the basin.
  - Task 3: Dissemination. Printing, translation, distribution, web-hosting. The distribution plan foresees a worldwide audience of more than 5 million readers. This includes English, Spanish and Portuguese readers. Distribution of materials to general audiences will be in charge of the consulting firm.
  - Distribution of materials in Brazil and the rest of Latin America will be done through the consulting firm's partners in each region.
  - The IDB will have at its disposition 2,500 printed copies in Spanish and 2,000 in Portuguese.
  - The map will also be promoted through social media and the web pages of the consulting firm and its partners in an effort to maximize the dissemination of the maps (both printed and digital). Specific activities linked to this task include:
    - Printing
    - Distribution
    - Translation
    - Web-hosting

#### IV. Outputs

**Output 1:** Comprehensive printed map of the Amazon basin depicting biophysical resources (terrestrial and hydrological), major infrastructure projects, and human productive activities. The printed map will have two sides, A and B. The printed version of the map will have two sides, A and B. Side A will focus on both terrestrial and aquatic resources, and will illustrate the waterways comprising the Amazon basin as well as man-made infrastructure (such as hydrological dams). The map will be annotated with explanations of selected water projects, biodiversity hotspots and hydraulic chokepoints. Information on terrestrial resources will include forest cover, deforestation, protected areas, indigenous reserves, road networks and oil and gas pipelines. The map will be annotated with explanations of selected reserves, energy resources, and land transportation corridors. Side B of the map will focus on ecosystemic features of the Amazon basin, including a cross-section view from the Andes to the sea, highlighting the diversity of flora and fauna of the basin.

**Output 2:** Interactive digital map of the Amazon basin, including the information of Output 1. The digital version of the map will be constructed in a layered format. Three digital layers are envisaged: The first one will allow the user to manipulate the data, enabling comparison, contrast and combination of information in interest areas. The second layer will take the user through a narrative illustrating data-driven spatial stories. The third layer of the map will include a description of the institutional frameworks (laws, regulations and main actors) that rule productive activities in the basin.

#### V. Schedule of payment

The consultancy services will be contracted for a lump-sum and will be paid in the following manner:

- 40% upon contract signature
- 30% upon completion of Output #1
- 30% upon completion of Output #2

#### VI. Coordination

- **Team leader/coordinator:** Michele Lemay, Natural Resources Lead Specialist (INE/RND) [michelel@iadb.org](mailto:michelel@iadb.org) and Enrique Ibarra Gené, consultant (INE/RND) [eibarra@iadb.org](mailto:eibarra@iadb.org)
- **Department/division:** INE/RND

#### VII. Characteristics of the consultancy

- Consultancy Category & Modality: Firm & lump sum
- Contract Duration: Work will begin in February 2015 and will finish in January 2016
- Place(s) of work: Washington DC. It is expected that the firm keeps the project coordinator informed on the progress of the work. This may be through emails and/or phone calls.

- VIII. Qualifications:** Specialized firm, non-profit organization or research center/institute with demonstrated experience and in-depth expertise in the development of annotated maps (in print and digital forms) and comprehensive information materials. Extensive experience in themes related to the amazon basin (terrestrial and aquatic resources, productive activities and use/degradation of natural resources) is essential.

PROCUREMENT PLAN FOR NON-REIMBURSABLE TECHNICAL COOPERATIONS										
Country: Regional						Executing agency: IDB-INE/RND			Public or private sector: PUBLIC	
Project number: RG-T2532						Title of Project: NATURAL AND HUMAN SYSTEMS OF THE AMAZON BASIN: AN INTERACTIVE MAP TO RAISE PUBLIC AWARENESS AND FOR INFOR				
Period covered by the plan: 12 months										
Threshold for ex post review of procurements:				Goods and services (in US\$):__				Consulting services(in US\$): \$400,000		
Item No.	Ref. AWP	Description (1)	Estimated contract cost (US\$)	Procurement Method (2)	Review of procurement (ex-ante or ex-post) (3)	Source of financing and percentage		Estimated date of the procurement notice or start of the contract	Technical review by the PTL (4)	Comments
						IDB/MIF %	Local/other %			
1		Activity 1: Contract signature	160,000	SSS	Ex-Ante	100%	0%			
2		Activity 2: Printed map	120,000	SSS	Ex-Post	100%	0%			
3		Activity 3: Digital map	120,000	SSS	Ex-Post	100%	0%			
								Feb-15		
Total			400,000	Prepared by: Enrique Ibarra Gene, INE/RND			Date: 1/27/2015			
(1) Grouping together of similar procurement is recommended, such as computer hardware, publications, travel, etc. If there are a number of similar individual contracts to be executed at different times, they can be grouped together under a single heading, with an explanation in the comments column indicating the average individual amount and the period during which the contract would be executed. For example: an export promotion project that includes travel to participate in fairs would have an item called "airfare for fairs", an estimated total value od US\$5,000, and an explanation in the Comments column: "This is for approximately four different airfares to participate in fairs in the region in years X and X1".										
(2) <b>Goods and works:</b> CB: Competitive bidding; PC: Price comparison; DC: Direct contracting.										
(2) <b>Consulting firms:</b> CQS: Selection Based on the Consultants' Qualifications; QCBS: Quality and cost-based selection; LCS: Least Cost Selection; FBS: Selection nder a Fixed Budget; SSS: Single Source Selection; QBS: Quality Based selection.										
(2) <b>Individual consultants:</b> IICQ: International Individual Consultant Selection Based on Qualifications; SSS: Single Source Selection.										
(3) <b>Ex ante/ex post review:</b> In general, depending on the institutional capacity and level of risk associated with the procurement, ex post review is the standard modality. Ex ante review can be specified for critical or complex process.										
(4) <b>Technical review:</b> The PTL will use this column to define those procurement he/she considers "critical"or "complex"that require ex ante review of the terms of reference, technical specifications, reports, outputs, or other items.										