



**WORLD  
RESOURCES  
INSTITUTE**

**FINAL PERFORMANCE REPORT – CARPE II  
OCTOBER 1, 2006 TO SEPTEMBER 30, 2013**



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## **1. INTRODUCTION**

This report has been prepared by the World Resources Institute (WRI) in partial fulfillment of the Collaborative Agreement Award No. 623-A-00-06-00048-00 entitled “*Improved Governance & Sustainable use of Forest resources in Central Africa*” as part of USAID’s Central Africa Regional Program for the Environment (CARPE). The award was initially granted for two years on September 25, 2006 and subsequently amended in 2008, 2011 and 2012. More particularly, it complies with Article A.5 - *REPORTING AND EVALUATION*, sub-article 3 - *Final Report* of the Agreement, from the original contract.

This report details activities conducted by WRI under USAID-CARPE Cooperative Agreement Award No. 623-A-00-06-00048-00 during the period from October 1<sup>st</sup>, 2006 to September 30, 2013.

As requested under this Agreement, WRI is submitting this final technical report which summarizes the results achieved for the entire period of the Agreement (Section 2). This Final Report has been prepared according to the CARPE Strategic Objective (SO) Framework, the Performance Monitoring Plan (PMP), relevant indicators and the WRI work plans.

As requested, in addition to the overall results obtained, this Final Report includes:

- i. *Major Accomplishments, especially of results that may not have been contemplated in the Agreement or CARPE SO framework* (Section 3);
- ii. *Any shortfall in achieving anticipated outcomes and results, a brief discussion of why these results were not achieved and “lessons learned” or a retrospective analysis of whether results expected were reasonable, verifiable, and quantifiable* (Section 4);
- iii. *An analysis of the status of the economic governance of the Congo Basin natural resources* (Section 5);
- iv. *A summary status of the state of the partners and regional institutions to monitor natural resources exploitation* (Section 6).
- v. *Recommendations for USAID and other associated donors and partners for future support and activities related to CARPE Strategic Objective* (Section 7).

## **2. RESULTS ACHIEVED OVER THE PERIOD OF THE AGREEMENT**

### **2.1 WRI Institutional context**

WRI's mission is to move human society to live in ways that protect Earth's environment and its capacity to provide for the needs and aspirations of current and future generations. WRI works at the intersection of the environment and development to develop practical solutions that address global challenges related to forests, food, water, climate, energy, transport, and governance. WRI's forest strategy aims to reduce poverty, enhance food security, conserve biodiversity, and support climate change adaptation and mitigation by reducing forest loss and supporting efforts to restore degraded and deforested ecosystems. The Global Forest Watch (GFW) initiative is a major focus of WRI's forest strategy.

WRI's GFW Central Africa regional program activities foster better management of natural resources, through independent and objective monitoring of forestry activities, as well as through capacity building of both government and civil society. By increasing information flow on current and planned forestry activities, WRI-GFW initiatives are designed to drive changes in policy, forest management practices and implementation of forestry legislation, by providing tools to hold natural resource users and managers accountable. The monitoring is carried out together with governments, local NGOs and the private sector to assure a participative approach to increase local capacity and ensure long-term local monitoring and information dissemination. WRI is building on this foundation to identify the implications of forest policy and implementation on poverty reduction and the sustainable management of forest resources, with the aim of developing specific tools and analyses that support decision makers in the design and implementation of forest management policies.

### **2.2 Summary of results achieved by CARPE IR**

This section provides a summary of the major results achieved by WRI and partners for each Intermediate Result (IR) during the period of the Agreement (FY07-13) in the context of the USAID-CARPE II Performance Management Plan (PMP)<sup>1</sup>, shown in Figure 1 below.

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<sup>1</sup> USAID-CARPE II Performance Management Plan first approved January 19, 2004 and last revised August 6, 2008 (<http://carpe.umd.edu/resources/index.php?tab=2>)

Figure 1. CARPE II Results Framework and PMP (highlights are CARPE's)

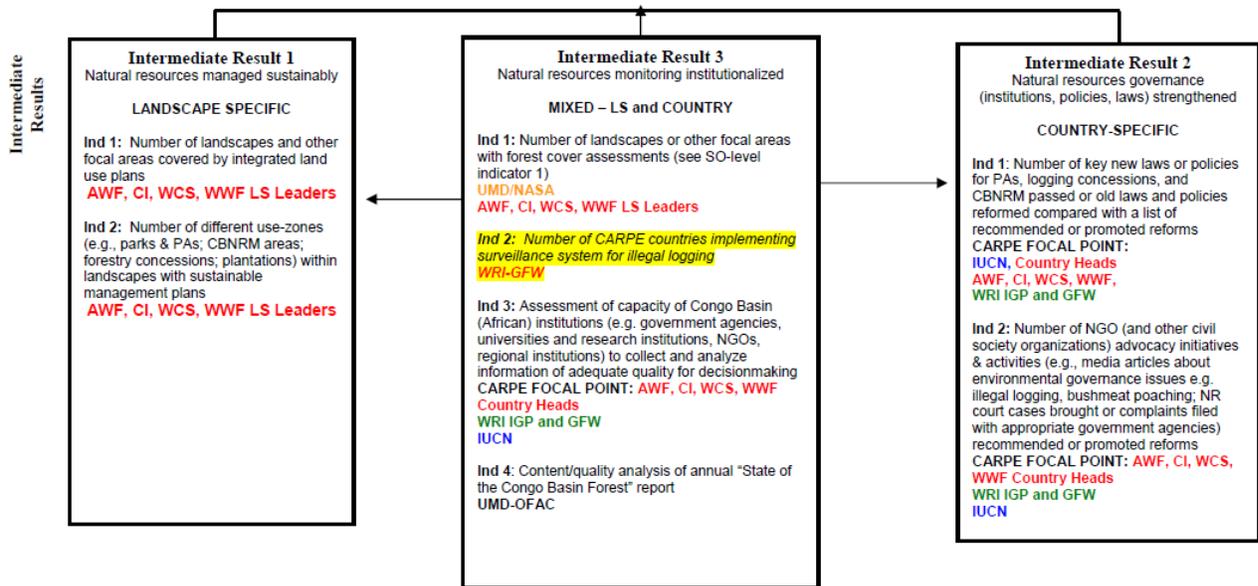
**Results Framework for CARPE II – Revised for Performance Management Plan**

*Reduce the rate of forest degradation and loss of biodiversity through increased local, national, and regional natural resource management capacity.*

SO Indicators:

Ind 1: Change in area of forest from intact/pristine to "degraded," modified, or secondary forest or to non-forest; and from "degraded" forest to non-forest

Ind 2: Population status for selected biodiversity "indicator" species such as: wide-ranging "landscape" species and/or ecological keystone species (e.g. elephants, large predators) and/or globally threatened species (such as, mountain gorillas, bonobos, etc.)



### 2.2.1 IR 3.2

#### **Intermediate Result 3:** *Natural Resources Monitoring Institutionalized*

**Indicator 2:** *Number of CARPE countries implementing surveillance system for illegal logging*<sup>2</sup>

Within the CARPE II framework from FY07-13, WRI largely focused on partnering with national institutions/organizations (e.g. ministries of forestry or environment; forest sector NGOs) to design, build and operate forest management systems. The model pursued under CARPE II was an expansion and scaling up of WRI and CARPE's investment of the Interactive Forest Atlas in Cameroon from 2004-2006. During 2007-2013, WRI's work focused generally around two main systems: (1) The Forest Atlases (GIS based, aimed at land use allocation and monitoring); (2) Forest Information Management Systems (FIMS, relational database system, aimed at tracking logging specific information). The objectives of putting in place these systems included enabling:

- Establishment of a standard forest information platform to better coordinate and harmonize forest resource decision-making
- Improved transparency, equity, and sustainability of natural resource use allocation at national and sub-national levels
- Improved tracking and monitoring of forest use over time, with a particular focus on logging (combatting of illegal logging)
- Increased access to information on natural resource allocation and obligations of actors from all sectors, in order to increase accountability
- Decreased conflict in land use allocation
- Increased participation in resource allocation decisions by all stakeholders

Technical capacity building (e.g. GIS, remote sensing, database design and development) was a significant cross-cutting activity across all forest sector stakeholders, with particular focus on the Ministry of Forests or Environment staff. Tables 1 and 2 summarize the results of WRI's achievements under this IR.

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<sup>2</sup> In the original 2006 grant agreement, this IR was referred to as IR 1.3. 1.3 was modified to IR 3.2 in the 2008 CARPE PMP modification referred to in the above footnote. This report refers to all IRs with respect to the latest version of the CARPE PMP, last revised in 2008.

Table 1

IR 3.2 - FY07-FY13 Summary of WRI Achievements versus USAID-CARPE targets

<b>Countries</b>	<b>Target from CARPE PMP<sup>3</sup></b>	<b>Target from WRI CARPE work plan<sup>4</sup></b>	<b>Achieved FY07-13</b>
Cameroon, Central African Republic, Democratic Republic of Congo, Equatorial Guinea, Gabon <sup>5</sup> and Republic of Congo	<p>USAID target:</p> <ul style="list-style-type: none"> <li>At least five (5) Congo Basin countries have illegal logging surveillance systems in place by FY11</li> </ul> <p>WRI contribution:</p> <ul style="list-style-type: none"> <li>Lead activities to respond to surveillance system target</li> </ul>	Partner with ministries of forestry and other key forest stakeholder groups to develop and put in place forest information management and monitoring systems in six (6) Congo Basin countries.	<ul style="list-style-type: none"> <li>Forest Atlases developed, operational, released annually and with at least one published report for all six (6) Congo Basin countries</li> <li>Pilot of two (2) Forest Information Management Systems (FIMS) in Congo and DRC</li> <li>Numerous applications of Forest Atlases toward reduction in illegal logging, improved land use allocation, transparency and accountability in forest sector</li> <li>Numerous articles in academic journals and media</li> </ul>

<sup>3</sup> As stated in CARPE II revised Performance Management Plan – approved January 19, 2004, revised February 24, 2005, April 17, 2006 and last on August 6, 2008.

<sup>4</sup> WRI CARPE work plan here integrates work plans from FY07-13.

<sup>5</sup> WRI did not receive USAID-CARPE funding to work in Gabon after FY12.

Table 2

Country-by-country summary of Interactive Forest Atlas results/products achieved between FY07-13

<b>Country/Forest Atlas online site</b>	<b>Forest Atlas system within Ministry</b>	<b>Forest Atlas summary report</b>	<b>Atlas DVD and mapping application</b>	<b>Atlas poster</b>	<b>GIS data published</b>	<b>Online mapping platform</b>
Cameroon <a href="http://www.wri.org/our-work/project/congo-basin-forests/cameroon#project-tabs">http://www.wri.org/our-work/project/congo-basin-forests/cameroon#project-tabs</a>	Since 2007 within the Ministry of Forestry and Wildlife (MINFOF)	Version 2 (2007); Version 3 (2012)	Version 2 (2007); Version 3 (2012)	Annually, since 2007	Annually, since 2007	Operational since 2007, annually updated since 2012
Central African Republic <a href="http://www.wri.org/our-work/project/congo-basin-forests/central-african-republic#project-tabs">http://www.wri.org/our-work/project/congo-basin-forests/central-african-republic#project-tabs</a>	Since 2009 within the Ministry of Waters, Forests, Hunting and Fishing (MEFCP)	Version 1 (2010)	Version 1 (2010); Version 2 (2013)	2008, 2009, 2012	Annually since 2009	Since 2012
Democratic Republic of Congo <a href="http://www.wri.org/our-work/project/congo-basin-forests/democratic-republic-congo#project-tabs">http://www.wri.org/our-work/project/congo-basin-forests/democratic-republic-congo#project-tabs</a>	Since 2007 within the Ministry of Environment, Nature Conservation and Tourism (MECNT)	Version 1 (2011)	Version 1 (2011); Version 2 (2013)	2007, 2008, 2009, 2011, 2013	Annually since 2010	Since 2011
Equatorial Guinea <a href="http://www.wri.org/our-work/project/congo-basin-forests/equatorial-guinea#project-tabs">http://www.wri.org/our-work/project/congo-basin-forests/equatorial-guinea#project-tabs</a>	Since 2011 within INDEFOR of the Ministry of Agriculture and Forests (MAB)	Version 1 (2013)	Version 1 (2013)	2013	Annually since 2012	2013
Gabon <a href="http://www.wri.org/our-work/project/congo-basin-forests/gabon#project-tabs">http://www.wri.org/our-work/project/congo-basin-forests/gabon#project-tabs</a>	Since 2009 within the Ministry of Water and Forests (MEF)	Version Pilote/version 1 (2009)	Version 1 (2009); Version 2 (2011)	2009, 2011	Annually since 2009	2013

Republic of Congo <a href="http://www.wri.org/our-work/project/congo-basin-forests/congo#project-tabs">http://www.wri.org/our-work/project/congo-basin-forests/congo#project-tabs</a>	Since 2007 within the Ministry of Forest Economy and Sustainable Development (MEFDD)	Version 1 (2007); Version 3 (2012)	Version 1 (2007); Version 2 (2008); Version 3 (2012)	Annually, since 2007	Annually, since 2007	Operational since 2007, annually updated since 2011
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### ***Summary of Results***

Overall, WRI’s work under this IR surpassed USAID-CARPE’s target of having an illegal logging monitoring system operational in five (5) countries across the Congo Basin. With the inclusion of Equatorial Guinea, the Forest Atlas system was operational in six (6) Congo Basin countries by the end of CARPE II. A more detailed discussion of activities and results follows, by country.

#### *Forest Atlases*

**Cameroon.** In Cameroon, WRI primarily partnered (through an official Memorandum of Understanding – MOU) with the Ministry of Forestry and Wildlife (MINFOF) to expand and scale up the Interactive Forest Atlas developed between WRI, MINFOF, Cameroon Environment Watch (CEW) and Limbe Botanical Garden between 2004 and 2006. Published in 2005, the first version of the Forest Atlas of Cameroon was largely developed through a partnership of local NGOs, led by WRI. From 2007, WRI and MINFOF focused on integrating the Forest Atlas system wholly into MINFOF’s operations, by establishing a dedicated MINFOF team (4-6 technical staff) to work on the Atlas, supported by WRI. As a result of this approach, MINFOF staff have received months of on the job technical training in the implementation and operation of the Cameroon Forest Atlas. The integration of the Atlas within MINFOF has also led to the Atlas being better appropriated, better able to respond to MINFOF’s needs, as well as MINFOF employing the Atlas system in many of its decision-making processes related to land use allocation. Over the course of this program, the Ministries of Mines and Agriculture were convinced to collaborate and included relevant land and resource use information on the Cameroon Forest Atlas, in order to improve coordination between different land use sectors. Results in terms of products and services are summarized above in Table 2.

Following the close of CARPE operations in Cameroon from October 2013, WRI continues to partner with MINFOF and collaborating land use ministries (e.g. Ministries of Mines, Agriculture and Environment) to improve the Forest Atlas platform within the context of the WRI-led Global Forest Watch initiative.

**Central African Republic (CAR).** WRI began work on the Forest Atlas in CAR in late 2007, in partnership (through an official MOU) with the Ministry of Waters, Forests, Hunting and Fishing (MEFCP) and with the *Projet d’Appui à la Réalisation des Plans d’Aménagement Forestier* (PARPAF) project. Within the MEFCP, WRI primarily focused on working with the *Centre de Données Forestières* (CDF) to dedicate an official team (3-4 technical staff) to design, develop and implement the Forest

Atlas of CAR. A preliminary Forest Atlas system was put in place in CAR in 2009 and, subsequently, expanded and improved over the course of the following four years (see summary of products in Table 2).

2013 was a difficult year for the CAR overall with the overthrow of the government by coup in March, followed by looting of Bangui and continued periods of civil unrest across the country. Many government and NGO offices were looted and much material and institutional memory lost. Fortunately the Forest Atlas work in CAR has included the digitalization and back-up of many of MEFCP's data – this cataloguing has helped ensure that the country did not lose all of its forest information during the looting and is now better placed to pick up and move forward again.

Following the close of CARPE operations in CAR from October 2013, WRI continues to partner with MEFCP and collaborating land use ministries (e.g. Ministries of Mines) to improve the Forest Atlas platform within the context of the WRI-led Global Forest Watch initiative.

**Democratic Republic of Congo (DRC).** WRI has been working under CARPE in DRC since 2007, partnering primarily (through an MOU) with the Ministry of Environment, Nature Conservation and Tourism (MECNT), through their *Direction d'Inventaire et Aménagement Forestier* (DIAF). The Forest Atlas work began in DRC as a key technical support element of the forest title conversion process, whose main activities were from 2007-2009 and which was jointly supported through World Bank financing. The team responsible for the development and operation of the Forest Atlas in DRC ranged from six dedicated staff (1 WRI and 5 DIAF) in 2007 to 15 in 2013 (12 at MECNT provincial level and 3 in MECNT-WRI in Kinshasa). From 2010, the Forest Atlas work in DRC was jointly funded by the World Bank's *Projet Forêt et Conservation de la Nature* (PFCN). A summary of specific results from the Forest Atlas work in DRC is listed in Table 2.

Following the end of CARPE II in DRC, WRI continues to work with MECNT to improve and expand the Forest Atlas (functionally and geographically) with support of the World Bank through their PFCN.

**Equatorial Guinea.** Equatorial Guinea (EG) was the last of six countries in the Congo Basin that WRI started work in under CARPE. Dating from the signature of an MOU between WRI and EG's Ministry of Forest and Agriculture (MAB), WRI and MAB's technical institute the *Instituto Nacional de Desarrollo Forestal y gestión del sistema de Areas Protegidas* (INDEFOR-AP) collaborated in the development and implementation of the Forest Atlas of EG. A team of 2 WRI and 3 INDEFOR-AP staff were dedicated to working on the development of the Forest Atlas, the first version of which was published in 2013 and launched in Bata, EG. A summary of specific results from the Forest Atlas work in EG is listed in Table 2.

Following the close of CARPE operations in EG from October 2013, WRI continues to partner closely with MAB and INDEFOR-AP to improve and expand the Forest Atlas platform within the context of the WRI-led Global Forest Watch initiative.

**Gabon.** Activities officially got underway in Gabon in mid-2007, following the signature of the MOU with the then *Ministère de l'Economie Forestière, des Eaux, de la Pêche, de l'Environnement chargé de la Protection de la Nature* (MEFEPPN). In Gabon, the Forest Atlas was developed through the support of WRI (2 full time staff, one seconded from MEFEPPN) and six (6) dedicated staff from the Ministry, each one representing one of the Ministry's departments. Following the publishing of the

pilot (first) version of the Forest Atlas of Gabon in 2009, the project benefited from additional funding from the European Union (through a partnership with World Wildlife Fund – WWF), which provided the resources to fully engage the Ministry of Mines in the Atlas platform. The result was the development and release of an integrated Forest-Mining-Conservation Atlas in 2011 (see Table 2 for complete product details).

Following the close of CARPE supported operations in Gabon after 2012, WRI has continued to work with what is now the Ministry of Water and Forests (MEF), local NGO Muyissi Environment and other forest and land use actors in the scaling up and expansion of Forest Atlas work under WRI's Global Forest Watch initiative. Building off of CARPE investment, a second version of the Gabon Forest Atlas was published by WRI and MEF in 2013.

**Republic of Congo.** In Congo, CARPE's investment in the Forest Atlas (from 2007) built off of an initial support by the International Tropical Timber Organization (ITTO) during 2003-2006 to develop access to high quality spatial data to support forest land use allocation and management in Congo. In 2007, WRI and Congo's Ministry of Forest Economy (MEF) signed an MOU to integrate the Forest Atlas and data into the MEF's daily operational structure in order to more effectively support improved land use allocation and monitoring of logging activities. In addition to the MEF, WRI also worked closely (through another MOU) with the Institute for Rural Development (IDR) at the University of Marien Ngouabi, to carry out much of the technical capacity building associated with the development and application of the Forest Atlas of Congo. The Forest Atlas team was comprised of one dedicated WRI staff (seconded from MEF) and 4-6 dedicated staff from MEF and IDR. A summary of results and products from this collaboration can be found in Table 2.

**Survey of Forest Atlas target audience.** In order to conduct a more comprehensive analysis on the use of WRI's Interactive Forest Atlases across the Congo Basin, WRI conducted an extensive survey of our primary target audiences during 2012. In addition to surveying use of the various Atlas products, another primary objective was to obtain feedback from our target audiences as to whether they see an interest in continuing with the Forest Atlases and, if so, what was their feedback as to how to improve the content and functionality of the Atlases going forward. The Atlas survey was conducted extensively online (survey monkey) for all countries in which the Forest Atlas has been published, as well as in person interviews with representatives of diverse stakeholder groups in Cameroon, Republic of Congo and DRC. Some key points from this survey follow:

#### Awareness and use of Forest Atlases

- Overall, amongst the target audience, the Forest Atlases are well known and widely used in one format or another;
- The reach and application of the Forest Atlases are significantly more extensive than initially realized, with the Atlases employed by nearly all forest and land-use sectors in some form or another throughout the Congo Basin. A few examples:
  - Regional agents of MINFOF using high resolution versions of the Atlas posters to plan field missions, when they didn't have access to computers;
  - Forest-based communities using Atlas poster and platform to situate requests for Community Forests in Cameroon;

- ANPN and Ministry of Forests in Gabon using Atlas platform to identify land use allocations (and conflicts) between different administrations (National Parks, Ministry of Forests, Ministry of Mines);
- Private sector across all countries using the Atlases in order to have consistent access to reliable information to better plan investments and forest management;
- Used by academics, researchers and REDD programs/projects to conduct analyses, site projects and provide orientation for improving land use allocation and forest resource management.
- While there are now other mapping initiatives underway in the Congo Basin (many of whom integrate information from the Forest Atlases), WRI's work with the Forest Atlases stands apart because:
  - They collaborate directly with government institutions, building on the one hand institutional capacity and, on the other, ensuring that data released is “officially” recognized;
  - High quality of the resulting information and products;
  - Public access to reports and information in multiple formats – ensuring greatest possible reach.

#### Feedback on future of Forest Atlases

- Near unanimity by survey respondents on the desire to see the Forest Atlases continue, as they are seen as critical to the advancement of many other processes to better manage forest resources in the Congo Basin;
- Improvements in future Forest Atlases should focus on:
  - Public access to near “real time” information (currently Atlas information is regularly updated within project database in Ministry of Forests, but only made publicly available once annually);
  - Expand breadth and depth of information content within Atlas. Include all land use classifications (officially and unofficially recognized) not just “forest” specific ones. Examples include agriculture, mining, oil, community lands, indigenous territories, etc...depending on the country;
  - Ensure mapping applications and data are available in a format accessible to non-GIS users as well

#### Addressing feedback

With respect to comments and feedback received through the Forest Atlas user survey, WRI and partners have already begun to address feedback in current Atlases being developed. WRI and MECNT in DRC are developing a pilot online Atlas server platform that will eventually allow MECNT to modify and share forest sector information in near “real time”. Following this pilot in DRC, WRI plans to roll out this updated Atlas platform throughout the Congo Basin.

In terms of Atlas content, WRI and partners have already begun to integrate other land use sectors (notably agriculture and mining) to the Atlas platform in Cameroon, Congo, Gabon and to a lesser extent other countries in the Congo Basin. Going forward, the plan is to continue to expand the Forest Atlas to become a common platform for managing land use allocation in each country - promoting coordination, transparency and monitoring.

In order to make the Forest Atlas more accessible to non-GIS users, WRI has focused on building recent mapping applications on a non-GIS interface that can be access both online, as well as through a desktop application that functions without internet.

### *Forest Information Management System*

In complement to the Forest Atlas systems (focus on land use allocation and spatial data for monitoring), WRI partnered with MECNT and MEF, in DRC and Congo, respectively to build pilot Forest Information Management Systems (FIMS). The primary objective of the FIMS was to complement the spatial mapping and data of the Atlases, and put in place a system that enabled the ministries to track, in a coordinated and comprehensive manner, information related to logging, including : volume harvested by species, taxes accrued, taxes paid, log bar codes, permit applications, etc. The pilot FIMS in both DRC and Congo were successful and piqued the demand from the ministries and private sector to have fully functional FIMS (or SIGEF, in French). Through discussions between WRI, MECNT, MEF, the private sector and USAID-CARPE, it was decided that the FIMS work was best passed on to *Sécurité Générale de Surveillance* (SGS). Since 2010, SGS, in continued collaboration with WRI and the Forest Atlas systems, has led the development and implementation of the FIMS for both Congo and DRC. The Congo piece of this work is assisting the government and private sector to respond to the legality and verification demands of the Forest Legality Enforcement Governance and Trade (FLEGT) Voluntary Partnership Agreement (VPA) between Congo and the EU.

#### **2.2.2. IR 3.3**

#### ***Intermediate Result 3: Natural Resources Monitoring Institutionalized***

***Indicator 3: Assessment of capacity of Congo Basin (African) Institutions to collect and analyze information of adequate quality for decision-making***

In addition to partnering with national institutions to build systems to improve forest resource allocation coordination and monitoring of logging, WRI invested heavily in technical capacity building of government, NGO and private sector organizations to collect, manage and apply forest information toward improved decision-making. The results of these efforts are presented in Table 3.

Table 3

IR 3.3 - FY07-FY13 WRI Achievements versus USAID-CARPE targets

<i>Countries</i>	<i>Target from CARPE PMP<sup>6</sup></i>	<i>Target from WRI CARPE work plan<sup>7</sup></i>	<i>Achieved FY07-13</i>
Cameroon, Central African Republic, Democratic Republic of Congo, Equatorial Guinea, Gabon <sup>8</sup> and Republic of Congo	<p>USAID target:</p> <ul style="list-style-type: none"> <li>• By FY11: Institutions monitoring forests and biodiversity are collecting and sharing information in a region-wide GIS system; "State of the Congo Basin Forest" and other reports are being disseminated annually to a range of target audiences</li> </ul> <p>WRI contribution:</p> <ul style="list-style-type: none"> <li>• Lead activities to respond to develop regional GIS system and train staff from government, private sector and civil society organizations in advanced technical skills</li> </ul>	<ul style="list-style-type: none"> <li>• By FY13: GIS-based forest information systems operational in at least six (6) countries in Congo Basin, with information published and shared between countries at a regional level.</li> <li>• By FY13: At least 360 staff members of appropriate institutions receive advanced training in some aspect of forest, biodiversity, or social impacts monitoring</li> <li>• Contribute GIS data, maps and relevant analysis to each Congo Basin: State of the Forest report</li> </ul>	<ul style="list-style-type: none"> <li>• Forest Atlases developed, operational, forest information released annually and with at least one published report for all six (6) Congo Basin countries</li> <li>• In collaboration with the Central Africa Forest Observatory (OFAC) and COMIFAC, WRI contributed significantly to establishing a central repository for Congo Basin GIS information, and the State of the Forest report</li> <li>• 1015 forest stakeholders trained in events lasting at least 3 days</li> </ul>

### **Summary of Results**

Overall, WRI's and partners' results over the course of CARPE II met or surpassed the targets set in the PMP. Technical capacity building was primarily focused on staff from the government institutions responsible for forest management – notably the Ministry of Forest or Environment (as in DRC). Technical capacity building focused on GIS, remote sensing, database design and development, as well as collection, management and diffusion of forest information. A summary of

<sup>6</sup> As stated in CARPE II revised Performance Management Plan – approved January 19, 2004, revised February 24, 2005, April 17, 2006 and last on August 6, 2008.

<sup>7</sup> WRI CARPE work plan here integrates work plans from FY07-13.

<sup>8</sup> WRI did not receive USAID-CARPE funding to work in Gabon after FY12.

the total number of people trained by WRI during CARPE II is presented in Table 4. A more detailed discussion of the work under this IR follows.

*Table 4. Breakdown of technical capacity building of forest stakeholders achieved from FY07-13*

Capacity building of 3 days or more			All capacity building activities		
Men	Women	Total staff	Men	Women	Total staff
789	226	1015	1314	294	1608

### *Technical capacity building*

**Cameroon.** In Cameroon, WRI primarily focused capacity building on MINFOF staff within the Department of Cartography and Forest Data (located in Yaoundé). Over the course of CARPE II, there were between 4-6 MINFOF staff dedicated to developing and operating the Forest Atlas system. These staff received continuous on-the-job technical training from WRI. Over the course of CARPE II, the staff dedicated to the Forest Atlas work by MINFOF changed several times as this staff was named to other posts. On the positive side, this turnover allowed for a greater number of MINFOF staff to be trained. On the other hand, this (at times) frequent turnover led to much starting over in terms of technical skill level and ability of MINFOF to implement Forest Atlas activities. MINFOF staff from several of the regional offices were also closely involved in the Forest Atlas development and implementation in Cameroon.

In addition to those staff from MINFOF dedicated to work on the Forest Atlas project, WRI and MINFOF led many technical training sessions with other MINFOF staff, relevant government institutions, forest sector NGOs, university students and representatives of the private forest sector. These trainings would range from one day workshops on Forest Atlas basics to several month internships for NGOs or students.

**Central African Republic (CAR).** In CAR, WRI primarily focused capacity building on staff from MEFCP's CDF. Over the course of CARPE II, there were between 3-4 MEFCP staff dedicated to developing and operating the Forest Atlas system. This core team of implementing staff at the ministry has essentially remained in place since shortly after Forest Atlas work began in CAR in 2007. The challenge in CAR has been dealing with very low levels of starting capacity to implement the Forest Atlas activities and to scaling these up outside of the core team within MEFCP. Additionally, the recent civil instability has rendered carrying out any activities, extremely difficult.

In addition to the MEFCP team, WRI has carried out several training activities with other government staff and forest/environment sector NGOs in CAR, such as *l'Organisation pour le Développement et l'Environnement* (ODE), through workshops and one-on-one training sessions.

**Democratic Republic of Congo (DRC).** WRI's technical capacity building work in the DRC has been almost exclusively focused on MECNT – in Kinshasa, as well as provincial staff in Bandundu, Equateur and Orientale. MECNT staff dedicated to the Forest Atlas work have ranged from 6 in 2007 to 15 in 2013 (a note here that dedicated staff focus on the Atlas implementation, but do have other responsibilities in addition). In addition to the dedicated staff within MECNT, WRI's

National Coordinator for DRC, is seconded full time from MECNT to the project and thus receives day-to-day technical training, as well as project management experience.

**Equatorial Guinea.** In Equatorial Guinea, the Forest Atlas project is embedded within the MAB's INDEFOR-AP. WRI's capacity building under CARPE II has focused on WRI's two full time staff (seconded to the project from MAB) as well as up to three INDEFOR-AP staff technicians (working in the cartography department). All five individuals were involved in the day-to-day development and operation of the Forest Atlas.

In addition to INDEFOR-AP staff, WRI carried out technical capacity building (through workshops and one-on-one trainings) of other MAB staff, as well as those of NGOs (e.g. Conservation International and ANDEGE).

**Gabon.** Capacity building in Gabon generally focused on the Ministry of Water and Forests (previously MEFEPN), the Ministry of Mines and Hydrocarbons, and with several national forest sector NGOs (e.g. Brainforest, Muyissi Environnement). In the lead up to the development and publication of the pilot Forest Atlas for Gabon, in 2009, there were 6 MEF staff dedicated to the Atlas project, receiving continuous on-the-job training as they implemented the Atlas activities. With the inclusion of the Ministry of Mines from 2010, the number of dedicated ministry staff across the two ministries increased to 10. Additionally, amongst WRI's full time staff, one was seconded to the project from MEF and thus benefited not only from technical training, but also from significant project management experience.

**Republic of Congo.** Capacity building in Congo generally focused on the MEF, notably on its two technically oriented institutions: (1) The *Centre National d'Inventaire et Aménagement Forestier* (CNIAF); and (2) General Direction of Forests. Additionally, the Institute for Rural Development (IDR) at the University of Marien Ngouabi both received and administered technical training within the Forest Atlas project. WRI's National Coordinator for Congo, Marcel Ibara, was seconded to the project from MEF during the course of CARPE II, thus receiving significant technical and project management experience.

In addition to the day-to-day capacity building through project implementation, significant training sessions were carried out both in Brazzaville, as well as throughout the forested Departements of Congo. These training sessions focused primarily on MEF staff, but also included those from other relevant ministries as well as from forest sector NGOs and the private sector in Congo.

### *Regional GIS system*

One of the PMP targets under this IR for CARPE II is the establishment of a regional GIS system for the Congo Basin. Shortly after the start of CARPE II, the Central Africa Forest Observatory (OFAC) was established as the technical institute for the Central Africa Forest Commission (COMIFAC). One of the main objectives of OFAC is to be the regional clearinghouse and hub of all forest and biodiversity related data (spatial and non-spatial) for COMIFAC and individual Congo Basin states, by extension. Part of setting up these services, requires the design and establishment of a regionally focused GIS system and database. Instead of building a separate system, WRI collaborated closely (through an official MOU) with OFAC to establish a forest information database and provide GIS data to their regional GIS database and biennial State of the Forest report.

Much of the forest sector database was built out in collaboration with the WRI-led Forest Transparency Initiative (FTI).

### 2.2.3 IR 3.4

**Intermediate Result 3:** *Natural resources monitoring institutionalized*

**Indicator 4:** *Content/quality analysis of annual “State of the Congo Basin Forest” report*

In addition to WRI’s work at the national level across the Congo Basin under CARPE II, WRI also contributed significantly to the biennial Congo Basin State of the Forest (SOF) report, whose compilation was led by OFAC. WRI’s principle contributions to the SOF report were through the compiling and provision of GIS data from the national Forest Atlases, key analysis of forest sector data and writing contributions to chapters on forest land use allocation, sustainable forest management and forest revenue sharing mechanisms. A summary of WRI’s contributions to the SOF reports during CARPE II can be found in Table 5.

Table 5

IR 3.4 - FY07-FY13 WRI Achievements versus USAID-CARPE targets

<i>Countries</i>	<i>Target from CARPE PMP<sup>9</sup></i>	<i>Target from WRI CARPE work plan<sup>10</sup></i>	<i>Achieved FY07-13</i>
Congo Basin regional	<p>USAID target:</p> <ul style="list-style-type: none"> <li>By FY11: third biennial "State of the Congo Basin Forest" report released; at least 50% of content prepared by Congo Basin.</li> </ul> <p>WRI contribution:</p> <ul style="list-style-type: none"> <li>Supply maps, data and analysis to SOF report; contribute to writing as requested</li> </ul>	<ul style="list-style-type: none"> <li>Maps and data provided to SOF report either directly by WRI or by local partners through WRI support</li> <li>SOF workshops attended by WRI</li> <li>Local institutions able to provide data (Linked with WRI contribution on IRs IR3.2 and 3.3)</li> <li>Comments, analysis and writing provided by WRI on content and quality of SOF Report.</li> </ul>	<ul style="list-style-type: none"> <li>WRI and local Ministry of Forests or Environment and NGO partners contributed significantly to maps, data and content of 2008, 2010 and 2012 reports</li> </ul>

### 2.3 Contributions to other IRs

In addition to the results listed above, WRI’s CARPE II supported work during FY07-13 contributed significantly to other of CARPE II’s IRs – notably IRs 1.1 and 1.2 dealing with land use planning in the focal Landscapes. The Forest Atlases served, and continue to serve as an extensive resource for access to national land use allocation information and other key spatial datasets, in support of carrying out land use planning at each of the CARPE focal Landscapes, by partner organizations (e.g. WCS, WWF, AWF, CI) leading activities here.

<sup>9</sup> As stated in CARPE II revised Performance Management Plan – approved January 19, 2004, revised February 24, 2005, April 17, 2006 and last on August 6, 2008.

<sup>10</sup> WRI CARPE work plan here integrates work plans from FY07-13.

### **3. MAJOR ACHIEVEMENTS AND SUCCESS STORIES**

The previous section highlighted the results from WRI's activities. Those results have led to many other notable achievements or "success stories". The most significant of these are detailed below.

#### **3.1 Forest revenue distribution policy analysis**

WRI conducted applied policy research pertaining to the forest tax sharing scheme in Cameroon to assess the effectiveness and efficiency of the delivery and management mechanisms by which part of the forest concession area taxes collected are redistributed to local governments and communities to finance socio-economic development in the forest zones of the country and hence in combating poverty. This research focused on examining the successes and failures of the policies and mechanisms in place for the collection and disbursement of revenues from the Forest Area Tax. This research led to the publication of a policy brief titled "Broken Promises: Forest Revenue Sharing in Cameroon" and recommendations to address shortfalls that were then followed up on by WRI's local partner in Cameroon – NESDA.

#### **3.2 Cancellation of forest concessions in DRC**

WRI served as independent observer in the DRC forest title conversion process, a project that received critical indirect support from CARPE. The project was named as one of WRI's Top Ten Institutional Outcomes for FY09. In February 2009, WRI, alongside partner AGREGO, formally attested that the process had been carried out in compliance with the legal provisions applicable in the DRC and general principles of law. Out of the initial 156 titles for which a request for conversion was submitted to the DRC government, only 65 were declared convertible by the Interministerial Commission, for a total area of 10 million hectares out of the 22 million hectares under review. The remaining titles were deemed illegal and subject to cancellation. The outcomes of the conversion process are far reaching and have set the groundwork for transparency, accountability, and sustainable management in the DRC forest sector.

WRI's particular involvement in the process brought international recognition to the DRC's efforts to promote sustainable forest management. By insisting on the involvement of local and indigenous populations, WRI helped elevate the degree of participation by groups that had traditionally been marginalized in forest resource management decision-making, setting the path to a true participatory approach to forest allocation and management. The project also helped clean up the official area of the forest titles, many of which were undervalued in the legal documents concerning taxable area and revenue for the DRC government.

#### **3.3 FLEGT process**

WRI's CARPE supported Forest Concession Monitoring System (FORCOMS) helped define many of the forest legality indicators that Congo Basin countries later used to develop their legality classifications in discussions with the EU during bi-lateral FLEGT-VPA negotiations. The FORCOMS indicators thus formed the basis for what would later become the VPA legality grids for Cameroon, Congo and CAR.

Additionally, in April 2009, the Republic of Congo signed a Voluntary Partnership Agreement (VPA) with the European Union under the FLEGT process. This VPA was made possible in part because of the existence in Congo of the SIGEF, that WRI piloted with MEF.

### *3.4 Change in mindset toward transparency and information sharing*

With respect to the situation ten years ago, the most significant success story from WRI's CARPE supported work in Congo Basin has been the vast increase in access to quality forest information and, in parallel, the change in mindset from many in the forest sector towards a willingness to share this information publicly. Ten years ago, the situation was nearly identical in every Congo Basin country – very little, if any, information on the forest sector was made publicly available – held instead by only a few powerful individuals who would often wield it to their advantage to extract kickbacks in exchange for access to some amount of this information. Not only did this situation create a culture of corruption and illicit land allocation deals, prevent monitoring and accountability measures, but the information was often also of very bad quality for decision-making. Fast forward to the present and, while the situation in the forest sector in the Congo Basin remains far from perfect, huge strides have been made. Today, there is relatively high quality forest information publicly available for five of the six main forested countries of the region – but most of all – there has been a significant transformation in mindset regarding transparency in the forest sector. All Governments in the region now are not only willing to share forest sector information, but have engaged more significantly and concretely in its production by notably nominating staff to work directly with WRI and even providing financial resources (i.e. Gabon Ministry of Mines).

#### *Equatorial Guinea*

Few are the people who would combine Equatorial Guinea and openness in the same sentence. Yet, with the recent publication of the first version of the Forest Atlas, EG has made huge advances in transparency.

One of the main objectives of the Forest Atlas work is to collaborate with the government and its partners to move from a situation where key forest and natural resource use information is held by only a few, to one in which it is of much better quality and widely available to all actors – to improve decision-making around resource allocation, policy implementation and monitoring. There have been specific challenges to make land use allocation information (and their associated contracts, etc) publically available in each country in the Congo Basin – with each requiring a specific tailored approach depending on the national context. In this regard, however, publishing the Forest Atlas and its contents in partnership with the government of EG, is an accomplishment that WRI is particularly proud of – given the extreme challenges of the governance context of the country. The winning strategy here was a combination of having a model that could be presented from other countries and investing in a team at MAB (mostly at INDEFOR, the technical institute of MAB) that was convinced of the need for a better way of managing forests and forest information in EG. It took a lot of work to get all the necessary actors on board, but, in the end, everyone became convinced that the Forest Atlas was a process and tool worth investing in and thus things went forward. Feedback since the launch of the Atlas Forestal continues to be positive within EG, with new actors in government now coming forward to the WRI-MAB team, stating they have land use or natural resource information that they would also like to make available through the Atlas.

### **3.5 Vast increase in access to forest information**

Ten years ago there was virtually no public access to logging permits or rights across the Congo Basin, now these are available on at least an annual basis for the entire region.

#### *Regional*

Across the Congo Basin region, WRI has opened the doors to forest information. At the end of FY10, DRC, Congo, Gabon, Cameroon, and CAR all have operational geodatabases from which to monitor and manage forest resources, as well as a team of forest ministry staff trained in the use of the geodatabase and related GIS tools. In each country, relevant data is continuously being collected, verified and entered in the geodatabases in order to ensure effective resource management decision-making based on real-time data.

#### *Congo*

As a result of WRI's Atlas work, the Congolese government now requires companies to submit logging concession allocation and annual timber harvest requests using a GIS platform - a substantial improvement over the old paper system. Ministry staff is able to operate off of a single, harmonized set of digital forest data, avoiding past logging title mix-ups between agencies, and have embraced the new technology in their daily work and management processes. Increased capacity in civil society has added to their ability to effectively monitor ongoing activity. The Forest Atlas also enables Congolese officials to prioritize their limited resources to combat illegal logging—dispatching units to investigate problem areas identified remotely, rather than sending units across the country in the hopes of stumbling upon illegal activity. In addition, the Congolese government is using the mapping tools to revise the taxable area of logging concessions, and reconcile these findings against previous data sets. This exercise has led to the discovery of under calculated areas and ultimately an overall increase in forest tax revenues.

#### *Gabon*

In May 2009, WRI successfully launched the Pilot Version of the Gabon Atlas, followed by other versions in 2011 and 2013. This initiative has garnered much praise throughout both the NGO community in Gabon and the Administration – notably for the integration of the MEFEPA team in its production, as well as serving as a driving force for starting to systematically organize forest sector information in Gabon. High ranking members of the Ministry of Forestry commented that this was the only project that they had been involved with that produced tangible and applicable results. The Gabonese NGO community reminisced in amazement how just a few years before, they had to go through the back door at MEFEPA to acquire incomplete information on forest concessions, and now the complete data was publicly available. The interactive Atlas tool and associated products has allowed Gabon to make a significant jump forward towards transparency and forest resource management.

### **3.6 Inspiration of other forest and land use actors**

Capitalizing on the strong interest generated by the 2009 Interactive Forest Atlas of Gabon, Gabon's Ministry of Mining and Petrol, in collaboration with WRI and WWF led the development of the first ever inter-ministerial land allocation management platform by bringing together the three principle land management administrations to produce the first Mining, Forestry and Conservation Atlas. A novel approach to resource management in the region, the Atlas brings together data from three

Ministries in Gabon, allowing each Ministry to finally see and analyze precisely where others have allocated land use rights. Gabon is now able to begin to deal with conflicting land use claims and to implement comprehensive land use planning at the national level that more effectively address the resource use needs of its population. The Government has significantly improved transparency, coordination between institutions and capacity of its staff. In the interest of increasing accountability and participation, information from the Atlas is now public in both paper and digital formats.

### *Significance*

Historically one of the least transparent agencies in Gabon, the Ministry of Mines recognized the importance of access to reliable, high quality information for decision-making, and led the initiative to demonstrate its necessity to all actors – even contributing their *own* funds to implement the project. A situation that was unimaginable several years ago, their action truly demonstrates that there has been a major policy shift with regards to transparency and access to information within the mining and forest sectors of Gabon.

This outcome directly impacts the ability of the Government, to vastly improve coordination. Through transparency and tackling land-use claim conflicts, this outcome also benefits the private sector actors in mining and forestry, the ability of civil society to participate and monitor these sectors, as well as for local communities to advocate for their land and resource use rights.

### *Attribution to WRI and CARPE*

This outcome resulted directly from WRI's CARPE funded work on the Interactive Forest Atlas, first published in 2009. WRI's successful strategy in Gabon, rests on several key aspects: (1) proven track record of results deemed useful by government, private sector and civil society; (2) long term investment in government capacity – both technological and human; (3) real collaboration - not agenda driven.

### **3.7 Forest Atlases as catalyzer of other initiatives**

WRI's successful track record of building local GIS and remote sensing capacity and developing forest management systems has attracted international funding for subsequent projects in nearly every country. USAID-CARPE is the direct catalyst for this expansion. Through its support of WRI's now widely used Interactive Forest Atlases, the CARPE program has served as a guidepost for other funders, governments, NGOs, and private sector operators working to improve forest management in the Congo Basin. The partnership networks and dialogue achieved during the production of WRI's Interactive Atlases created an enabling environment for a suite of related projects across the region. Examples of recent projects include the World Bank-funded SyGIS project in the DRC, the WWF-sponsored Interactive Mining Project in Gabon, the GTZ-funded ProPSFE in Cameroon, the recently launched UNEP-GEF project entitled *A regional focus on Sustainable forest Management in the Congo*, and the recent FAO-ACP-FLEGT project to integrate and field test in the field the integration of FLEGT indicators to WRI's Forest Transparency Initiative (FTI).

Across the region, both formally (e.g. State of Forest meeting) and informally, WRI's work on capacity building, forest management systems, and forest information access is increasingly recognized as an important precursor (pioneering event) to the implementation and success of

subsequent projects. WRI's work to breakdown the reluctance towards information sharing by Ministries of Forestry and logging companies has helped set the stage for follow-up projects such as REM Forest Monitoring in Cameroon and Congo, GTZ ProPSFE in Cameroon and FORAF/OFAC – all aimed to increase accountability and transparency in the Congo Basin forest sector.

### *Land use planning*

Shortly after WRI, in collaboration with WWF, Min of Mines and Min of Forests, published a map and dataset of overlapping land use allocation in Gabon between the Conservation, Forestry and Mining sectors, the Gabonese Government officially launched a national land-use zoning process (November 2011) with the aim of setting out a coordinated strategize for land use across the country. While this national zoning process has been largely carried out behind closed doors and never officially acknowledged the WRI-led multi-sector mapping work, much of the underlying datasets feeding into the process have come from the CARPE supported Forest Atlas.

### *Global Forest Watch*

In January 2014, WRI and partners will launch Global Forest Watch 2.0 (GFW), “a forthcoming initiative that seeks to revolutionize the global fight against deforestation by mobilizing new technologies and human networks to provide timely information on the state of the world’s forests.” The foundation for GFW was developed through CARPE supported work – notably WRI’s forest Atlases and UMD/OSFAC’s forest change products and methods. One of the objectives of CARPE, and that of GFW, is to facilitate better forest management through vastly improved access to forest information. The combination of information on land use allocation (Atlases) combined with monitoring land use change, provides forest stakeholders with a powerful combination to better ensure forests are managed sustainably and according to the law. Within the tropical forest sector, the approach for bringing these two datasets together at the national and regional level was first carried out by WRI and UMD/OSFAC under CARPE. With the advent of new technologies and the ability to significantly increase the amount and speed with which data is processed, WRI, UMD and other GFW partners saw the potential to take this model global. GFW is essentially then a scaling up of work that CARPE has invested in over the years in Central Africa. Extending this approach globally showcases the huge scale of impact that the investment in CARPE has achieved. Not only does GFW scale up a key piece of the CARPE approach to the world, but the improved access to forest change information and other datasets will significantly benefit actors in Central Africa as well. This is quite a large success story that WRI would be happy to help CARPE sell better.

### **3.8 *Myriad applications of Forest Atlas information***

If one comes across maps of Central Africa in the natural resource sector, there is a good chance those maps contain some data from WRI’s CARPE supported Forest Atlas work. Ten years ago, when CARPE and WRI started working on improving forest management by investing in increased access to quality forest information and human capacity, most land use allocation information was in rough shape and not publically available. In 2013, there is vastly improved access to forest information and technical capacity across the Congo Basin – and CARPE has had a huge role to play in this. Across all six countries in the Congo Basin, the Forest Atlases have largely become the

official channel by which governments publish information on land use allocation in their respective countries. In addition to information on logging permits, protected areas, community forests, etc, the Forest Atlases have made important contributions to improving many of the GIS base layers (e.g. roads, rivers, towns) for each country – information whose uses spread far beyond the natural resource sector.

A few examples of work that benefits from CARPE’s investment in the Forest Atlases (in addition to those mentioned elsewhere in this document):

- DRC’s National Forest Monitoring System (<http://www.rdc-snsf.org/>)
- The World Bank and UNEP’s joint effort to map extractive resources in fragile states
- “Bureaux d’Etudes” such as FRM, Terea and Sylvafrica when developing management plans for forest concessionaires
- CARPE landscape partners such as WWF, WCS and AWF when producing many of their land use zoning or report maps
- Gabon’s *Plan National d’Affection des Terres* (PNAT)
- University of Michigan’s CAFI (<http://sitemaker.umich.edu/cafi/home>)

### ***3.9 New logging related policies***

As a direct result of lobbying the MEFDD by WRI’s Forest Atlas team in Congo, the Minister put out a Circular Letter stating that from 2012 on:

- Only the forest land use allocation contained within the Interactive Forest Atlas and its poster were to be considered official;
- All holders of forest concessions must include clear geographic references with their annual logging volume and area requests – the lack of which has made legality enforcement extremely difficult on the ground.

WRI is currently assisting the MEF to implement these new regulations, amongst other common objectives.

### ***3.10 Changes in land use allocation***

In September 2012, MINFOF and WRI published the 3<sup>rd</sup> version of the Interactive Forest Atlas of Cameroon. Due in large part to a simplification of the application process and aid in identification of appropriate lands through the Interactive Forest Atlas, Community Forests increased by more than 200% between 2006-11 in Cameroon. A number of the users responding to the survey cited the role of the Atlas in assisting communities in going through with the application process.

### ***3.11 Institutional integration and local leadership***

WRI has invested heavily in building local capacity of civil society and our partner Ministries; the majority of in-country work is now led by Ministry of Forestry staff seconded to the project, assuring that investments will remain once the project ends.

### **3.12 *Reducing incidents of illegal logging***

Identification of irregular logging roads, overlapping land use allocation and equipping Ministry of Forestry agents and monitoring NGOs with sophisticated tools and methods have contributed to significant reductions in formal sector illegal logging in Cameroon.

Illegal logging in Cameroon has decreased by approximately 50 percent since 2000, according to an independent Chatham House report (<http://www.chathamhouse.org.uk/news/view/-/id/1105/>).

Cameroon's forests, covering more than 20 million hectares, offer a range of ecosystem services and are vital resources for both biodiversity and economic growth. But illegal loggers also find value in the forests, and illegal logging has long threatened local livelihoods, decimated wildlife, and squandered public revenue. The Cameroonian government is responsible for controlling logging activities, but a lack of adequate forest-related information, tools, and capacity has historically made it difficult to monitor logging activities.

Recognizing this critical gap, WRI launched a partnership in 2002 with Cameroon's Ministry of Forestry and interested NGOs. WRI's goal was to provide information and tools that would improve transparency, accountability, and forest monitoring — ultimately serving as the springboard for a crackdown on illegal logging. WRI developed interactive maps, data, and decision-support systems to monitor logging activities and trained government officials, NGO, and private sector representatives on their use. These systems have:

- Enabled Cameroonian officials to systematically detect logging violations in protected areas and outside of forest concessions.
- Empowered local NGOs to conduct independent monitoring of logging operations.
- Helped ensure wood products leaving Cameroon were harvested legally, in compliance with international import regulations such as the FLEGT and U.S. Lacey Act.

As the first international NGO to map Cameroon's forests and place accurate, up-to-date information into public hands, WRI sent ripples through the Cameroonian forest sector, making it clear that illegal logging would no longer go unnoticed or unpunished.

### **3.13 *Improved coordination between land allocation administrations***

Starting strictly with the forest sector, the Atlas platform has expanded to integrate mining in Gabon, Congo and Cameroon – in support of improved land use planning. This work has also led to kick start a country wide review of land use allocation in Gabon.

#### **4. SHORTFALLS AND LESSONS LEARNED**

Overall, WRI has largely fulfilled and, in most cases surpassed, its commitments to achieve CARPE II's Intermediate Results. Nonetheless, there are a few cases in which the targets were not able to be achieved as initially envisioned under the CARPE II PMP – due either to lack of feasibility or change in priority over the course of CARPE II. These issues are discussed below under “Shortfalls”. Additionally, the wealth of experiences under CARPE II produced several notable “lessons learned” in terms of what was done well, as well as what experience taught WRI and how we’d go about things differently next time (or have modified our approach going forward). In addition to the lessons learned below, WRI contributed a case study on forest monitoring to the “CARPE II: Lessons Learned” publication (<http://carpe.umd.edu/resources/index.php?tab=1>).

##### **4.1 Shortfalls**

While WRI and partners generally met or exceeded targets during CARPE II, there are a couple targets that were not met as initially conceived.

###### *Implementation of illegal logging surveillance systems*

As initially conceived, WRI was going to lead implementation of “finalized, sustainable, user-friendly tools for logging surveillance” in at least five Congo Basin countries. These systems would be based on a combination of GIS and remote sensing technology and would provide national government institutions and other forest sector actors with the ability to track logging activities in a “near real time” basis in order to better combat illegal logging.

WRI and partners were successful in developing and implementing an integrated system for managing and monitoring forest land use allocation through the Forest Atlases, across six countries in the Congo Basin. WRI was also successful in working with national institutions and CSOs to map logging roads from satellite imagery and GPS tracking, providing a time stamp to these roads and then overlaying them with where and when logging should be occurring to help identify areas of potential illegal activity. Due to a lesser than anticipated availability of satellite imagery over the region (and lacking sufficient budget to conduct GPS tracking across whole countries), WRI was not successful in establishing a “near real time” monitoring system for illegal logging in any of the countries of operation during CARPE II. Technology and methodology have since caught up with aspiration though and WRI and partners are planning to launch the new Global Forest Watch (GFW) platform in early 2014 – which will be capable of mapping forest clearing on a near real time (monthly) basis. Combined with the Forest Atlas systems in place, the GFW platform will provide a powerful new tool to governments and other forest sector actors in the fight against illegal logging.

###### *Regional GIS system*

As noted in section 2.2.2, WRI did not pursue leading the development of a regional GIS system for the Congo Basin, as soon after the start of CARPE II, development of this system became the objective of OFAC. The current OFAC site contains all the GIS data from the national Forest Atlases; however there is not yet a functional regional GIS system in place that integrates the regional with the national in a comprehensive manner. With WRI's assistance, OFAC is in the process of developing the regional Atlas for the Congo Basin, set to be ready by June 2014.

## 4.2 *Lessons learned*

The first major lesson learned is that a focus on an integrated and participatory approach leading to quality outputs has been worth the time investment in terms of buy-in and application by targeted actors in the forest sector. Throughout our experience in the development and implementation of the interactive forest Atlases in Central Africa, WRI has consistently sought to actively engage relevant actors in the development of the Atlases, as well as to involve them in the review and validation of the resulting applications and data. At times, this approach has led to delays in publications or release of data as the various actors provided their feedback. However, in all countries in which the Atlases have been published, the end product and participatory process have been held up by all as an example of quality and constructive collaboration. As a result of our initial successes and approach in both Cameroon and Congo, subsequent demands have come from other countries in the region (as well as other forested regions) to develop similar forest information management systems. Of course, “success breeds success,” but the key lesson here is that when working towards developing systems with a longer term vision of sustainable resource management it is important to assure proper buy-in and that certain corners should not be cut in order to achieve shorter term results.

A second lesson learned is that in order to assure that the interactive forest Atlas and geodatabase tools respond to the real needs of the collaborating host Ministry of Forestry and other relevant decision-makers in the forest sector, it is necessary to engage these actors in the conception and development of these products. When we put together the first interactive forest Atlas for Cameroon (published in 2005), the development of the application and report was carried out primarily with a number of forest sector NGOs, in loose collaboration with MINFOF. At the time, this approach was necessary due on the one hand to the reticence of MINFOF to fully engage the Atlas initiative and, on the other, for the need to produce a product that could then be used as a forest management example to MINFOF and other governments of the region. Subsequently, while the Cameroon Atlas has been widely used by various actors in the forest sector, it has been insufficiently integrated into the core of MINFOF’s forest management operations. This lack of integration of the Atlas appeared to be as a result of lack of buy-in by key technical personal at the central level. Consequently, WRI and MINFOF have decided to slightly alter our strategy and to have the project based within MINFOF’s technical department (CETELCAF), with four members of this department dedicated to working on further developing and improving future Atlas versions so that they better respond to the needs of MINFOF.

### *Constant evolution*

Since beginning work on the Forest Atlases ten years ago in Cameroon, much has changed. Initially, the main focus was largely on transitioning from paper to digital datasets, ensuring that forest land use information was publicly available and that government and civil society had at least the basic skills to be able to collect and use the information, once released. Online and mobile technologies were in their infancy still and government or private sector were often not very willing partners in the endeavor to create one common, transparent platform to manage and share forest data. Ten years ago, WRI was one of the only organizations working in spatial data and land use allocation.

While many of the same challenges are present, much has also changed and the role of the Atlas must be constantly evaluated, as well as its functionality evolving to respond to the needs of today.

Now that WRI and partners in the Congo Basin have successfully published full forest Atlases for six countries, release annual GIS datasets and land use allocation posters, this type of access becomes the norm and stakeholders turn to pushing for more and better data and application functionality. Ultimately, users need information at the scale (temporal, spatial) and complexity that responds to their monitoring or decision-making needs. What they need is credible, up-to-date information in a format in which they can use without expending precious time to process what the information represents. If WRI and partners want to maximize the effectiveness of the Forest Atlases, we need to put in place a process and application that responds to these needs, at various users levels – notably for both the producers and consumers of forest information. Linking the Atlas platforms to specific needs within the forest sector (zoning, monitoring, timber trade markets) will better ensure their continuity after CARPE funding ceases. Ensuring that this integration occurs in a manner deemed essential by the major forest stakeholders in each country must be a critical component of CARPE Phase 3.

### *Impact*

One can be successful at producing forest information of the highest quality, but they are only as useful as they are applied to impact positive change on the ground. As mentioned above, WRI and partners have been very successful at affecting significant change in the availability of high quality information on forest and land use. This information has led to a number of measured impacts (most of which have been presented in past reports to CARPE), including reductions in illegal logging in the formal sector (within or associated with logging permits), near elimination of intrusion into protected areas by industrial loggers, reductions in the under the table dealing in extractive resource permits (due primarily to the fact that these permits will eventually be published) vast increases in Community Forests in Cameroon and a reduction in overlap of competing land uses.

Yet, corruption and unsustainable management continue in the forest and natural resource sector; resource allocation and monitoring decisions continue to be made using less than adequate information. Producing and distributing the information is certainly not enough in itself – in order to better ensure it is applied, the following steps can be taken:

- The information be delivered in a format that is accessible to the target audience
- Information responds directly to needs of the intended target audience and that this target audience is integrated from the outset
- Information is paired with mechanisms to improve accountability (e.g. the FLEGT process)
- Information be produced at a scale at which it is applicable (e.g. timber volume authorized vs harvested)

## **5. STATUS OF ECONOMIC GOVERNANCE OF CONGO BASIN NATURAL RESOURCES**

WRI did not conduct a specific analysis on economic governance of the Congo Basin natural resources under CARPE II.

## **6. SUMMARY OF THE STATE OF PARTNER AND REGIONAL INSTITUTIONS TO MONITOR NATURAL RESOURCES EXPLOITATION**

This assessment focuses on the capacity of WRI's CARPE II partners to collect, manage and apply forest information toward the monitoring of natural resource exploitation (with focus on timber) across the Congo Basin. The main parties carrying out natural resource monitoring are the ministries of forests or environment and forest sector national civil society organizations. On the technical side, this assessment focuses on the use of satellite remote sensing (RS), geographic information system (GIS), relational databases and global positioning system (GPS) tools. Country-by-country capacity building investments were covered in section 2.2.2 and thus, the current section focuses on the institutional capacity to carry out effect natural resource monitoring, as well as some of the remaining obstacles to doing this effectively.

It is worth noting here that CARPE was initially structured to be carried out in three phases, wherein Phase II focused on the development and joint implementation/operation of systems or approaches between host country institutions and technical support organizations (i.e. the CARPE Partners). The focus of CARPE Phase III was thus planned to be, amongst other objectives, assuring that host-country institutions and organizations were able to implement/operate autonomously the systems and approaches developed under CARPE II. Due to a change in strategic focus, CARPE will only be investing in the Democratic Republic of Congo and the Republic of Congo during Phase III. Thus, the initially planned transfer to local institutions/organizations will not take place under CARPE for Cameroon, CAR, Equatorial Guinea and Gabon. Nonetheless, WRI has secured limited funds under its Global Forest Watch initiative to continue to work in these non-CARPE III Congo Basin countries and to ensure that local institutions/organizations are eventually wholly capable of carrying out operation of the systems and approaches developed under CARPE II.

The below assessments are done on a sector by sector basis across the Congo Basin.

### **6.1 Government and (Ministries of Forest or Environment)**

Compared with 10 years ago (at the start of CARPE II), the national institutions responsible for forest resource allocation and management (i.e. the Ministries of Forest or Environment), are much better equipped and trained to manage and monitor natural resource exploitation. Yet, several obstacles remain to ensuring that these national institutions are able to manage, monitor and respond to exploitation of natural resources in their respective countries in an effective manner.

#### *Current situation*

At the end of CARPE II, all six Congo Basin countries have Forest Atlas GIS-based systems developed and operational within the technical or cartography unit of the Ministry of Forestry (for DRC it is the Ministry of Environment in charge of forest management). These integrated and

publically available information systems represent a huge step forward in land use and natural resource monitoring from the pre-CARPE II situation. Pre-CARPE II, most national institutions were dependent on paper-based systems that were often highly inaccurate and in which information was managed separately (e.g. protected areas in one department, logging permits in another) was not freely shared between forest sector actors, creating a significant asymmetry of information-based power between those who had access and those who did not. In terms of access to forest and land-use information, the situation in 2013 is much improved across the Congo Basin over that of 2003.

The Forest Atlases contain, at a minimum, information on land use allocation within the forest sector (e.g. logging permits, protected areas, and community forests) and key associated (attribute) information (e.g. title holder, title contract, obligations of title holder, annual volume of wood harvested, area of title). This land use allocation data was developed using a combination of legal texts (describing where area is to be located), satellite derived information (e.g. rivers, roads) and field validation when necessary to clarify remotely derived information. As a result of this standardized, methodical process, the information contained within the Forest Atlases is highly accurate – the most accurate source of land use allocation and relevant spatial data (e.g. roads, rivers, towns) across the Congo Basin. Not only are these individual datasets highly accurate, but the fact that they are combined onto one integrated system (the Forest Atlas) that is distributed publically at least once annually, renders them much more readily applied to land use and forest monitoring decision-making.

Functionally speaking, the Forest Atlases are generally operated on an ArcGIS based platform. WRI has an institutional agreement with ESRI, the developers of ArcGIS, through which we've procured licenses for all our technical partners in the Congo Basin. These licenses are free of charge to our partners and permanent, through WRI. If WRI ceased to be involved in the Congo Basin, or with ESRI, technical partners would then be responsible for acquiring new licenses, if they needed to expand from the current capacity, but the existing licenses would remain operational.

As a forest information management system, the Forest Atlas is currently housed on individuals' computers within the Ministries at the central level (i.e. capital city), with information updated by project team members as there are changes. The Forest Atlases do not currently operate on a server and thus, within the ministries, information is passed manually from Atlas team members to the central Forest Atlas database. This database is then backed-up regularly and the contained information is package in different formats (e.g. poster, DVD, report, online/offline mapping application) at least once annually.

Outside of these publications, the Forest Atlas system serves many daily operational needs of the ministries in terms of land use planning and allocation and natural resource monitoring. The principal monitoring aspects that the Forest Atlas provides include:

- Tracking land and resource use rights allocation over time and between sectors (e.g. logging, conservation, mining, agriculture, community forests)
- Tracking areas and wood volumes allocated annually for logging versus volumes harvested and taxes paid
- Ability to monitor where logging is occurring (through tracking of logging roads) versus where logging has been authorized, and to respond in a targeted manner to incidents of suspected illegal activity

- Through vast increases in transparency and access to information, allowing civil society and other third party actors to also monitor logging and other natural resource exploitation with respect to national laws and obligations of implementing parties

In terms of human technical capacity, great progress has also been achieved since the start of CARPE II. Within the ministries, hundreds of individuals have received training in GIS, remote-sensing, use of the Forest Atlases and more general principles on the management of forest information through a standardized, database driven approach. This effective transfer of skills and technology to host country staff and institutions has allowed these institutions to operate the Forest Atlas systems with far less direct WRI technical support than at the start of CARPE II.

The geographic scope of day-to-day operations of the Forest Atlases is primarily confined to the central ministries in the capital city, with the exception of Cameroon and DRC where there are operational Forest Atlas units within the ministry offices in the major forested regions or provinces.

## **6.2 National Civil Society**

National civil society organizations (CSOs) working in the natural resource monitoring sector across the Congo Basin have significantly matured over the past ten years. By the end of CARPE II, there were forest monitoring initiatives being led by CSOs (often in partnership with an international organization) in every Congo Basin country except Equatorial Guinea. Many of these organizations, such as Brainforest in Gabon, CEW in Cameroon and CAGDF in Congo have been close partners of WRI's under CARPE and, as such, have benefitted from significant technical capacity building. These organizations have also significantly benefitted from technical and financial support to conduct forest monitoring under the EU's FLEGT process. Independent forest monitoring by national CSOs has been included as a mandatory element of the FLEGT VPAs already signed between the EU and Cameroon, CAR and Congo. While the VPA negotiations have not wrapped up yet in Gabon and DRC, it is expected that those countries would also have independent forest monitoring as part of these accords. In advance of their signature, the EU has been a major supporter of independent forest monitoring in DRC and Gabon.

Generally, forest and natural resource monitoring by CSOs is done to verify whether natural resource exploitation (mostly logging) is being carried out according to legality indicators associated with national forest laws and forest concession management plans. These field missions are typically done as "spot checks" against an official set of legality indicators and are carried out with forest concessionaires as well as with provincial level ministry of forests officials. Forest monitoring CSOs are currently most active in Cameroon (CEW), Congo (CAGDF) and DRC (OGF), where they have funded mandates by the EU-FLEGT program. Examples of the types of information gathered by these monitoring NGOs can be found here for Congo: <http://alpha.foresttransparency.org/en/data/report>.

### **6.3 Regional institutions**

OFAC (<http://www.observatoire-comifac.net/index.php>), the technical institution of COMIFAC is the major regional institution monitoring the natural resource sector across the Congo Basin. OFAC focuses on the collection, synthesis and distribution of forest and biodiversity information from diverse sources across the region. Generally, OFAC focuses on three major themes: (1) Forest cover change; (2) logging and production forests; and (3) biodiversity and conservation areas. The frequency and intensity of monitoring of each of these themes depends wholly on partners working with OFAC on each one. WRI partners closely with OFAC and COMIFAC (through an MOU) to link all information coming from the national level Forest Atlases to OFAC's regional system. In addition, WRI and OFAC partnered to develop the Forest Transparency Initiative (<http://alpha.foresttransparency.org/en/home>) in order to monitor logging concessions in a more complete and standardized manner.

OFAC's synthesis of regional natural resource information is distributed through the above web site as well as expanded up and published within the biennial Congo Basin State of the Forest reports.

In addition to OFAC, the Central Africa Satellite Forest Observatory (OSFAC - <http://osfac.net/index.php?lang=en> ) has produced (with support from CARPE) medium resolution decadal forest change maps for DRC, Congo and Gabon – monitoring the rate and location of forest clearing in those countries between 2000-2012.

## 7. **RECOMMENDATIONS**

While the focus of the next phase of CARPE has already been determined, WRI has some recommendations to improve natural resource management in the Congo Basin and contribute to CARPE's Strategic Objective.

Without losing sight of the advances that have been made in the management of forests across the Congo Basin through CARPE and related work, significant challenges remain. Through our work with the Forest Atlases, WRI has identified several challenges and needs relating to improving forest management and governance through better access to information and capacity to act on information. These needs include:

- Real time or near real time access to information – the forest sector is dynamic and stakeholders need to be able to access and provide information on a regular basis in order for it to be acted upon in a timely fashion;
- Improved coordination/harmonization within and between land management institutions - Within Ministries of Forestry there is a need for much better information flow and coordination between the central offices and field staff (who are carrying out most of the monitoring/enforcement); Between ministries (e.g. Forests, Mines, Agriculture, Petrol) there is an even greater need for better coordination in order to improve land use planning – especially given that most of the emerging threats to forests are occurring outside of the traditional forest sector (oil palm, industrial ag, mining, etc.);
- Improved support and monitoring of land use planning both at macro and micro levels;
- Better integration of community or local resource use and customary or statutory rights in land use planning process;
- Improved measuring and monitoring of REDD+ related indicators and metrics such as forest carbon stock, deforestation, degradation and drivers of these;
- Improved support and monitoring of landscape level activities, both within and outside of protected areas;
- Improved linkages between information access and policy reform within the forest and land tenure fields;
- Greater involvement and partnership with the private sector and access to information companies hold;
- Continue to build and increase capacity of actors from across the forest sector to better manage and apply forest information;
- Improved coordination and communication amongst CARPE partners during CARPE III – despite sometimes concerted efforts, there was often not a standardized methodology to information collection, nor an effective means of exchange information between landscapes and also between landscape actors and those, like WRI, working at the national level.