Climate-Smart Agriculture in Chiapas, Mexico

Supplementary material

This publication is a product of the collaborative effort between the International Center for Tropical Agriculture (CIAT), the lead Center of the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS); the Tropical Agricultural Research and Higher Education Center (CATIE); and the World Bank to identify country-specific baselines on CSA in seven countries in Latin America: Argentina, Colombia, Costa Rica, El Salvador, Grenada, Mexico, and Peru. The document was prepared under the co-leadership of Andrew Jarvis and Caitlin Corner-Dolloff (CIAT), Claudia Bouroncle (CATIE) and Svetlana Edmeades and Ana Bucher (World Bank). The main authors of this profile are Beatriz Zavariz-Romero (CIAT) and Chelsea Cervantes De Blois (CIAT), and the team was comprised of Andreea Nowak (CIAT), Miguel Lizarazo (CIAT), Pablo Imbach (CATIE), Andrew Halliday (CATIE), Rauf Prasodjo (CIAT), María Baca (CIAT), Claudia Medellín (CATIE), Karolina Argote (CIAT), Juan Carlos Zamora (CATIE), and Bastiaan Louman (CATIE).

The supplementary material should be cited as:
World Bank; CIAT; CATIE. 2014. Supplemental material for Climate-Smart Agriculture in Chiapas, Mexico. CSA Country Profiles for Latin America Series. Washington D.C.: The World Bank Group.

Special thanks to the institutions that provided information for this study: SAGARPA, CIMMYT, FIRCO, INIFAP, COFUPRO, FIRA, SMN, INECC and CONABIO.
This profile has benefited from comments received from World Bank colleagues: Willem Janssen, Marc Sadler, and Eija Pehu.

Contents

This Supplementary Material is in support of the Climate-Smart Agriculture in Chiapas, Mexico profile within the Country Profiles for Latin America Series. The annexes below are references where relevant in the text. The Supplementary Material cannot and should not be read in isolation. It can only be read in association with the chapter.

Annex I: *Acronyms*

AGROECO	*AGROECO consulting company*
CESMACH	*Campesinos Ecológicos de la Sierra Madre de Chiapas*
CI	*Conservation International*
CICC	*Comisión Intersecretarial de Cambio Climático*
CIMMYT	*Centro Internacional de Mejoramiento de Maíz y Trigo*
CONABIO	*Comisión Nacional para la Biodiversidad*
CONAFOR	*Comisión Nacional Forestal*
CONAGUA	*Comisión Nacional del Agua*
CONANP	*Comision Nacional de Areas Naturales Protegidas*
FIRA	*Fideicomisos Instituidos en Relación con la Agricultura*
ProNatura Sur	*Pro Natura NGO*
REDD+	*Reducing Emissions from Deforestation and Forest Degradation*
Root Capital	*Root Capital nonprofit*
SAGARPA	*Secretaria de Agricultura Ganadería Pesca y Desarrollo Rural*
SEMAHN	*Secretaría de Medio Ambiente e Historia Natural*
SEMARNAT	*Secretaría de Medio Ambiente y Recursos Naturales*
TNC	*The Nature Conservancy*

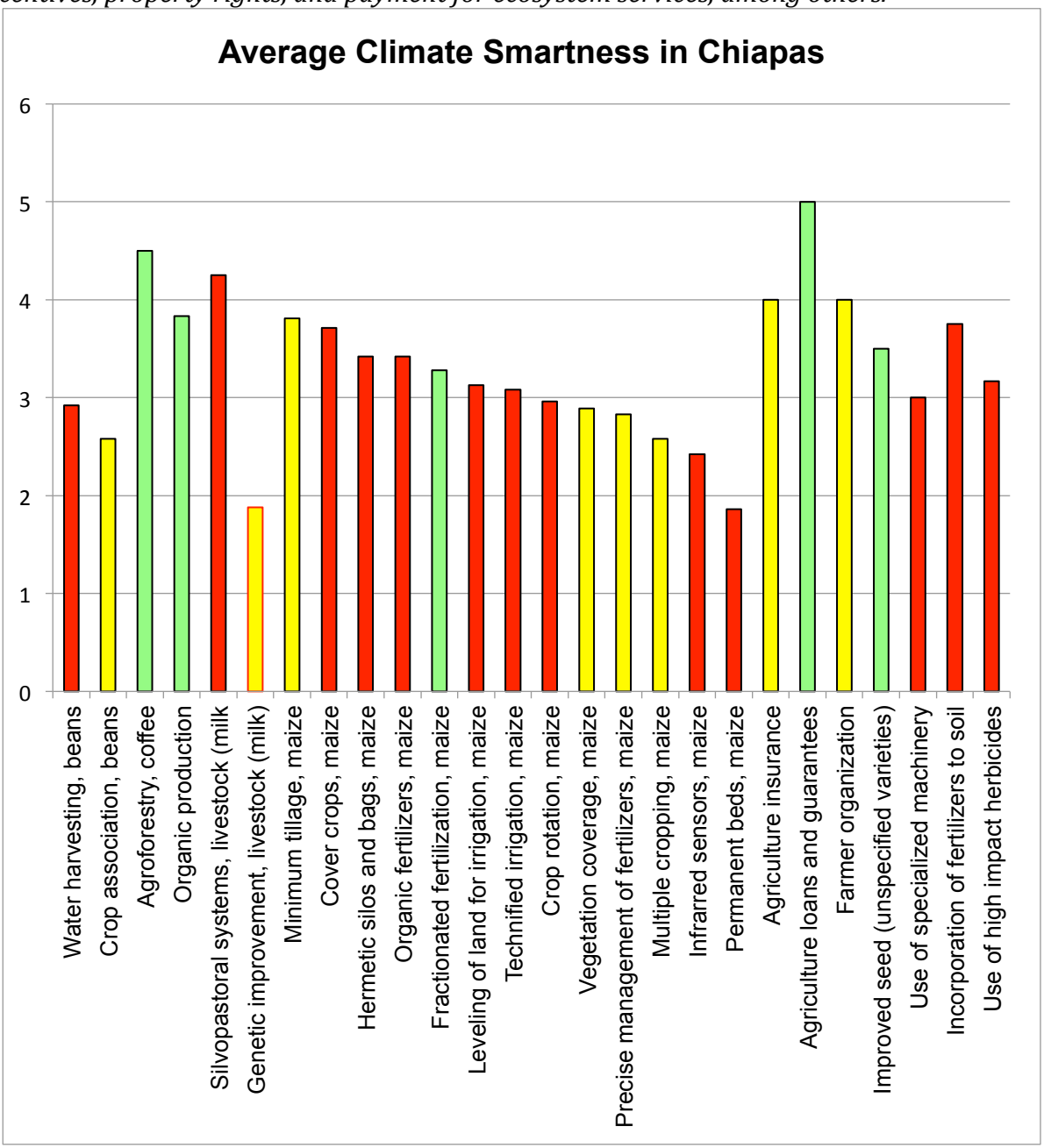
Annex II: *Production systems selection*

Production system selections were made according to the product's contribution to economic development, harvested area and food security. Environmental impact and interviewees' comments were also taken into account. In detail, the methodology consisted of 2 main steps: 1) Identifying agricultural products that occupy the largest harvested area in the country; and 2) identifying agricultural products with the highest value of production. A ranking score from 5 to 1 was given to the top products on each list. Then the rankings were averaged to compute an average top 5 ranking.

Products that contribute to kilocalorie consumption but are not highly produced in the country (e.g. soybean) were eliminated from the list. Similarly, products with high harvested area and value of production but not directly intended for human consumption (e.g. sorghum) were eliminated from the list. Milk and cattle meat, as animal products, were added to the list due to three considerations: 1) they complement the top list of crop products with animal production systems; 2) milk contributes significantly to average daily/kcal consumption per capita; and 3) livestock GHG emissions from pasture, land use change, and enteric fermentation contribute to more than half agricultural GHG emissions in Mexico.

Annex III: *Ongoing CSA practices*

As shown in the figure below, some agricultural practices implemented in Chiapas have a high climate smartness rating but low adoption rate: silvopastoralism, cover crops, hermetic silos and bags, and incorporation of fertilizers are examples of such practices that have high potential for future impact. In addition to on-farm practices, institutional and programmatic support is needed to scale up CSA, including meteorological early warning systems, farmer networks, strengthened agricultural extension, index-based insurance schemes, financial incentives, property rights, and payment for ecosystem services, among others.



Annex IV: *Problems identified for the agricultural sector in Chiapas*[1]

Priority	***Problem***
1	*High input cost*
2	*High production costs of most agriculture products*
3	*High prices in support components (training and extension services)*
4	*Insufficient entrepreneurial support to family and social businesses*
5	*Government support de-alignment of productive process periods*
6	*Unemployment in the rural sector*
7	*Low productivity*
8	*Irrational use of natural resources*
9	*Low quality of agricultural products*
10	*Disconnected supply chains*
11	*Insufficient capacitation and technical assistance in the short term*
12	*Contamination of the lake system*
13	*Deficient commercialization channels*
14	*Deficient sanitary controls*
15	*Deforestation*
16	*Low resource management capacity*
17	*Low association for inputs and products bulk acquisition*
18	*Excessive paperwork to access subsidies and financial services*
19	*Inadequate use of monetary resources in projects*
20	*Forest fires*
21	*Insufficient rural roads*
22	*Insufficient hydric infrastructure*
23	*Lack of permanent technical assistance*
24	*Social and agriculture development programs that disincentive productivity*
25	*Lack of institutional coordination in sectorial programs*
26	*Productive systems that don't comply with sanitation and safety*
27	*Inadequate use of agrochemicals*
28	*High analphabetism*
29	*Unqualified labor*
30	*Barriers to access financial services*
31	*Insufficient technologies for production*
32	*Scarce research in the rural sector*
33	*Scarce exchanges between research and production*
34	*Scarce technology adoption in the rural sector*
35	*The capital contribution required to farmers in order to access funds from the program "activos productivos" is too high*
36	*Social enterprise leadership blocks community involvement*
37	*Government support provided by organizations to farmers is insufficient*

[1] ***SAGARPA y Gobierno del Estado de Chiapas. 2010.*** *Diagnóstico Sectorial del Estado de Chiapas.* Chiapas, Mexico.