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2 **STRATEGIC PLANNING FOR COMMUNITY SUSTAINABILITY IN MODEL**
3 **FORESTS: CASE STUDY OF THE YORO MODEL FOREST, HONDURAS**

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Abstract

11 This study proposes the strategic planning process for development in model forests,
12 based on the case study of the Yoro Model Forest in Honduras. In this forest the timber
13 industry –and specifically the carpentry and furniture subsector– has the greatest
14 competitive potential for supplying products for export and generating wealth in the
15 area, given the region's scant purchasing capacity. Strategic analysis, strategic choice
16 and strategic implementation are applied to this subsector, and the results show that the
17 subsector could be developed by creating a cooperative enterprise capable of supplying
18 furniture parts to an international company whose marketing strategy includes the sale
19 of natural, environmentally-sustainable furniture, and which has a policy of social
20 engagement.

21 **Keywords:** Model forests, small-scale carpentry industries, small-scale furniture
22 industries, strategic planning.

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23 **Introduction**

24 The model forest first emerged in Canada in the 1990s, with the aim of integrating the
25 principles of sustainable development into forestry. At the initiative of the Canadian
26 Prime Minister, the International Model Forest Network (IMFN) was created in 1992 to
27 mark the United Nations Conference on Environment and Development (UNCED) in
28 Rio de Janeiro, and by 2011 it comprised 58 forests belonging to 24 countries, covering
29 over 108 million hectares and home to several million people.(IMFN 2011)

30 When a model forest is created, individuals and groups supporting a wide variety of
31 forest assets agree to work together to design and trial ways of managing natural
32 resources and forest landscapes, using approaches that are both acceptable at the local
33 level and significant at the national level. The governance of a model forest is based on
34 consensus, as it allows all the participants to express their opinion and play a part in the
35 activities carried out there. The governance structure is highly flexible and designed to
36 reflect the cultural, social, political and economic situation of the area where the model
37 forest operates. Stakeholders commonly include users, landowners and administrators,
38 forestry industries, community groups, NGOs, government bodies, academic and
39 research institutions and indigenous groups, among others (RIABM 2015).

40 The participants in the 2008 IMFN World Forum identified strategic initiatives to allow
41 their members to develop and implement programming priorities for issues that go
42 beyond particular model forests. These initiatives are: climate change and its possible
43 association with the programme for Reducing Emissions from Deforestation and Forest
44 Degradation (REDD); ecological goods and services, and the possibility of accessing
45 payment for ecological goods and services; and community sustainability and economic
46 development, an initiative designed to improve the quality of life of the members of the

47 communities participating in the model forest according to the particular economic
48 situation of each one.

49 The 28 projects on community sustainability and economic development (RIABM,
50 2015) have generally set out to reinforce local capacity in agriculture, livestock farming,
51 non-timber forestry products, crafts, tourism and others. There are no structured values
52 for strategic planning; the only reference is to a strategic development project in the
53 Campo Ma'an Model Forest in Cameroon, but this discusses ways for different
54 stakeholders to proceed to define the problems, solutions and actions for the benefit of
55 all the stakeholders, rather than to a structured strategic planning (Jum et al. 2007).

56 Another reference to strategic planning is the work on the systematisation of forestry
57 strategy in the Lachuá Ecoregion, Cobán, Alta Verapaz, Guatemala (Palacios and
58 Vaides 2011). This initiative aimed to create forestry plantations in deteriorating areas
59 of the model forest, but did not extend to supporting the development of the
60 communities.

61 **Background**

62 Strategic planning is a systematic process for enabling a company or organisation to
63 define its long-term vision and the strategies required to achieve it, based on the
64 analysis of its strengths, weaknesses, opportunities and threats (Serna-Gómez 1994). It
65 originated in the 1960s, and is currently widely used in a far greater number of fields
66 than originally envisaged, although its primary sphere of application is in strategic
67 planning in organisations, institutions and cities (Gil-Zafra 2001).

68 The main contributions of strategic planning when compared to the traditional approach
69 are essentially: A) the incorporation of the actors or socio-economic agents with a stake

70 in the territory; B) the dimensioning of the territory as something more than merely a
71 physical space; and C) the fact that it considers the objectives and strategies in a
72 dynamic way in order to adapt to a changing environment (Gil-Zafra 2001).

73 Strategic planning has been used in the forestry industry to provide a useful overview
74 and enable major problem areas to be identified (García-Jiménez et al. 2013, Rauch
75 2007).

76 David Ricardo's theory of comparative advantage suggests that it is logical for a country
77 to specialise in producing the commodities it can produce most efficiently, and to
78 acquire those that it cannot. Unlimited free trade leads to an increase in world
79 production, and by embracing free trade a country stimulates its economic growth and
80 generates an increase in revenues (Hill 2007).

81 The Heckscher-Ohlin model maintains that the pattern of international trade is
82 determined by differences in factor endowments. This theory also holds that countries
83 should export goods that make intensive use of locally abundant factors, and import
84 goods that make intensive use of locally scarce factors (Hill 2007).

85 Two key competitive advantages over other industries located in different areas are the
86 large amounts of local raw materials available and the low labour costs for local timber
87 industries (furniture and carpentry) inside most of the Model Forests.

88 Mejía et al. (2003) conducted a SWOT analysis of a sample of 185 firms located in
89 Siguatepeque and San Pedro Sula, out of the 1,000 companies existing in Honduras, and
90 found that industries with sufficient productive capacity can be enhanced by providing
91 more training for the workforce, and exploiting the subproducts of timber processing.
92 Timber products from Honduras are recognised worldwide; however, the output from

93 the industries in these two regions is mainly limited to the local market. The proposal
94 was to create strategic alliances and clusters to improve the production potential of the
95 timber processing firms, and devise market strategies to position the products in the
96 international market. It was further proposed that the development of this sector should
97 be driven by creating and reinforcing business networks, operating as work clusters and
98 alliances with external cooperation organisations with which they could purchase raw
99 materials in bulk and negotiate lower prices for their supplies.

100 **Objectives**

101 To create a strategic plan for the carpentry and furniture sector located in the Yoro
102 Model Forest (Honduras) and serve as the basis for improvements in the
103 competitiveness of these companies and in the wellbeing of the people in the local
104 communities.

105 **Methodology**

106 Strategic planning is the process of determining an organisation's main objectives and
107 the criteria for managing resources in order to achieve these objectives. The planning
108 process comprises the following stages: strategic analysis, strategic choice and strategic
109 implementation (Johnson and Scholes 1997).

110 **Strategic analysis (SWOT matrix)**

111 A strategic decision must be based on a broad approach to the current conditions of the
112 study area. SWOT matrix is a simple but complete tool to analyze a whole set of critical
113 strategic data and support the MOC (management of change) inside the Organizations.

114 Although there are several versions of the SWOT matrix in the bibliography –TOWS
115 analysis, balanced scorecard SWOT analysis– we decided to use the original matrix for
116 the analysis, also known as the Harvard model, with the following considerations (Gil-
117 Zafra 2001):

118 SWOT analysis aims to establish the current actual situation inside an organisation
119 (Strengths and Weaknesses) and the external market forces (Threats and Opportunities)
120 that could impact its competitiveness (Talancón 2007).

121 • For external references from international sources we consulted the United
122 Nations Development Programme (UNDP) (Malik 2014), Fundación
123 WageIndicator 2015, Worldbank 2015 and the Instituto Universitario en
124 Democracia, Paz y Seguridad (IUDPS 2014) for general information about the
125 country. Forest data were obtained from the United Nations Food and
126 Agriculture Organization (FAO) (Morales et al. 2002, Richards et al, 2003).

127 • A stakeholder survey was conducted to obtain the local data, and the Yoro
128 Model Forest Association provided some information and data (RIABM 2015).

129 The stakeholder survey analysed the whole local population of carpenters and furniture
130 makers by collecting information from the National Forestry Sciences School
131 (ESNACIFOR), the National Institute for the Conservation and Development of
132 Forestry, Protected Areas and Wildlife (ICF) and the Association of Forestry
133 Professionals in Honduras, although the initial list was extended based on the
134 information obtained from the carpenters themselves.

135 The surveys were designed in the form of direct personal interviews (occasionally by
136 phone) covering a range of topics containing both quantitative and qualitative elements,
137 with the help of a written questionnaire prepared according to Vallejo (2011).

138 The questionnaire is unstructured, and the questions therefore do not follow a strict
139 order or sequence, with a few exceptions. This enables the vocabulary to be adapted to
140 the respondent's education level, and offers greater leeway and flexibility in formulating
141 specific questions.

142 The questions concerning characteristics intrinsic to the firm –such as machinery,
143 techniques and technology– were designed to be semi-open, and always allowed the
144 option of answering with new responses which would enrich the knowledge of the local
145 industry.

146 For questions about the extrinsic factors with an influence in the environment, it is first
147 necessary to discover whether the owners are aware of the deficiencies and
148 opportunities in their firm and operating market by means of open questions that enable
149 the owner to participate and engage in the vision of the project for improvement, despite
150 the anticipated difficulty in tabulating their results.

151 The questionnaire was designed based on the following considerations:

- 152 - The use of vocabulary and terms were appropriate to the local language of the trade.
- 153 - The questions were formulated in a clear and unequivocal way.
- 154 - The survey began with the simplest questions and gradually increased in
155 complexity.

156 - Particular care was taken with questions that could be delicate or embarrassing for
157 the respondent, framing them in such a way that the information could be elicited
158 without causing refusal or untruthful responses.

159 - There were no questions containing value judgements or statements.

160 - The questions were formulated so the respondent would not need to make a
161 significant effort of memory or calculations, in order to avoid errors in the answers.

162 Some combined filter and control questions were also formulated.

163 With regard to the content of the questions, the questionnaire begins with several
164 identifying questions to obtain the respondents' personal details, and continues with
165 questions on opinion, information, motives and technical issues.

166 The questionnaire is structured in short themed modules in the following order:

167 - Firm's organisation and facilities

168 - Characteristics of the raw material, quantity, species and dimensions

169 - Drying techniques and knowledge of green wood

170 - Machinery

171 - Joins, preventive treatments and coatings

172 - Processed products: type of furniture and estimated production quantity

173 - Needs, support received and suggestions

174 - Promotion of the generation and sustainability of the timber resource and knowledge
175 of the production license procedure. (Proposed by the ICF).

176 Identification and choice of strategies

177 After defining the SWOT matrix, we identified different strategic approaches, such as
178 seeking to reduce the weaknesses (defensive strategy) or increase the strengths (reactive

179 strategy), avoiding weaknesses that interfere with opportunities (adaptive strategy) or
180 increasing strengths to improve our opportunities (offensive strategy) (Talancón 2007).
181 We must find the most profitable strategy in each case. We therefore pose a series of
182 questions in order to establish a decision-making process (Johnson and Scholes 1997):

- 183 - Opportunity of the strategy: which option plays to the organisation's strong points,
184 overcomes its weaknesses and exploits opportunities, while minimising the risks in
185 the environment?
- 186 - Feasibility of the strategy: how far can the strategic option be applied? Can the
187 necessary funding be obtained? Can the necessary staff be recruited and trained in
188 time? An acceptable selection criterion involves knowing what risks are acceptable.

189 Although the selection criteria are useful, there is unlikely to be a clear delimitation
190 between a correct and an incorrect strategy, as any choice inevitably entails risks or
191 drawbacks. The choice is therefore ultimately a matter of assessing the management.

192 **Strategic implementation**

193 This refers to the way the strategy is translated into action by designing and structuring
194 the sector, planning the resources and managing the strategic change. The success of
195 the strategy will depend on the degree to which these elements are effectively integrated
196 to create competencies which all the other organisations have difficulty in imitating.

197 The following questions were also raised about the implementation of the strategy: who
198 is responsible for implementing the strategy? What changes must be made in the design
199 of the organisational structure? What tasks need to be done? What changes must be
200 made in the resources?

201 **Results and discussion**

202 Honduras is the 129th country in the Human Development Index (HDI) of the PNUD,
203 with a value of 0.617 and has large sources of forest product. Forest Industry employed
204 more than 150,000 people, (Morales 2002) with an minimum wage of 10.45 (Fundación
205 WageIndicator 2015)

206 It is considered as an extreme violent country with more than 90 intentional homicides
207 per 100,000 people (Worldbank 2015)

208 Although there are many illegal forest operations, some negotiations with international
209 stakeholders as the AVA (Acuerdo Voluntario de Asociación) between the UE and the
210 Honduras Government that considered the principles from the FLEGT program of the
211 UE (Forest Law Enforcement, Governance and Trade) are making progresses for the
212 regulation of the forest industry (Wilberto 2015).

213 On internal analysis, we contacted a total of 60 carpentry or woodworking firms or
214 small-scale industries in the five municipalities in the Yoro Model Forest, after
215 obtaining the following information:

216 Company organisation: 82% of the companies have a nominal organisation, and log the
217 entry of raw materials, costs, product orders, scheduling, yields, quality control and so
218 on. They only record the invoices for timber purchases when required by the legislation.
219 The company sets the price of the end product intuitively based on the expected costs of
220 the raw materials and the estimated number of hours taken to produce the product. The
221 production of the remaining 18% of the firms is sold outside Yoro, and they maintain –
222 in a rudimentary way– a more extensive record of the entry of raw materials, costs,
223 product orders, scheduling, yields, quality control and so on.

224 Most of the firms (85%) have their facilities next to their homes, in barns (53%), all of
225 which have electrical power (usually two combined currents of 110 and 220 volts) and a
226 telephone (except three firms); only one firm has a dryer, and two have an office.

227 The fixed machinery in all the firms consists of a circular table saw (except one firm),
228 drill in the axis of the circular saw (except five firms) and planer (except seven firms).
229 Only around 25% of the respondents have a mortising machine, moulder and thickness
230 planer. Only two firms have a tenoning machine. Portable machinery commonly
231 includes portable belt sanders, drills, routers, jigsaws and portable planers. For coating,
232 52% have an airbrush gun, while the rest apply the finish with a brush, roller or cotton
233 rag.

234 All the firms have two to four workers (the firm owner also works as a carpenter) and
235 may occasionally have an apprentice or even –in the case of large orders– temporarily
236 employ an assistant. The owners of these firms have very little education. Only 5% have
237 higher studies, 23% of the respondents have vocational training in carpentry, and the
238 rest have primary (33%) or secondary (27%) education, or none at all. They are
239 generally in early middle-age and only 5% are over 50.

240 Timber consumption ranges between 0.7 and 3.5 m³/month, normally in the form of
241 block (with a width and thickness varying between 4, 6 and 8 inches and 7 or 8 feet
242 long) supplied by “coyotes” or middlemen directly to their plants, without their
243 knowing the source of the wood (normally illegal); although 38% of the respondents
244 also admit they directly use the timber in the forest without the necessary authorisation.
245 The most common species in order of use are: cedar (*Cedrela odorata* L.), Caribbean
246 longleaf pitch pine (*Pinus oocarpa* Schiede.), Guatemalan rosewood (*Dalbergia*
247 *cubiquiltzensis* Pitt.), light American cordia (*Cordia alliodora* Oken), cedar bitter

248 (*Cedrela fissilis* Vell.), aguacatillo (*Ocotea irazuensis* Lundell), cedrillo (*Huertea*
249 *cubensis* Griseb.), mahogany (*Swietenia macrophylla* King⁶), tropical walnut (*Juglans*
250 *olanchana* Standl. & L. O. Wms.), tamboril (*Enterolobium cyclocarpum* Gris.), white
251 mahogany (*Tabebuia donnell-smithii* Rose.), and bully tree (*Hyeronima alchorneoides*
252 Allemao). Fourteen more species were mentioned, although exceptionally, and always
253 by fewer than half of the companies interviewed.

254 With regard to workshop techniques, it is worth noting that 92% of the respondents dry
255 the timber vertically with occasional rotation (only 75% of the respondents) and for a
256 period ranging between 10 and 40 days, with an average of 15 days for 1 inch
257 thicknesses, and 30 days for 2 inch. Only 27% admitted that the wood was not totally
258 dry, which became clear in the application of the coating. None of the respondents
259 acknowledged the problem of juvenile wood. The joinery used is 50% butt joints and
260 50% tongue and groove, always applying polyvinyl acetate glues. From most to least
261 common, the joints are: tongue and groove reinforced with screws or nails, mortise and
262 tenon, biscuit, dowel, and finally staples. In no case are dovetail joints used. The coating
263 is usually based on applying sealers and subsequently a topcoat of shellac (64%),
264 polyurethane (47%) or nitrocellulose (20%). In the case of pine, the usual practice is to
265 apply an anti-termite product (41%) and then a dye prior to sealing (100%). Finally,
266 only 45% of the respondents were able to estimate the yield of the raw material, which
267 was ventured at around 55-65%.

268 Most firms work only with orders from private individuals in the community where they
269 live or nearby; four produce stocks for companies outside the region, and another seven

⁶ Species included in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

270 firms sell to intermediaries who market the furniture outside the region. All, or almost
271 all of them manufacture the following products: doors with doorframes and subframes,
272 rods, cupboards, kitchen cabinets, chests of drawers, tables and bookshelves, and to a
273 lesser extent (by just over half the companies): cots, windows, chairs, coffins; while
274 some entrepreneurs make carved handicrafts, blinds, chests of drawers, office furniture
275 and so forth.

276 In the section on needs, support and suggestions, practically all the firms highlighted the
277 need to tackle common problems in a cooperative way. 27% expressed an interest in
278 improving the technology, another 27% in improving their technique, 22% in resolving
279 their problems with coatings, 18% pointed out the need for support in finding markets
280 and 8% in upgrading their facilities.

281 Finally, the questions on the generation and sustainability of the timber resource and
282 knowledge of the procedures for production licenses revealed that most were aware of
283 the existence of forestry plantations created in recent years in the model forest and in
284 the surrounding area. They admit that most of the timber they process is illegal,
285 although they do not relate this directly to deforestation –which tends to be more closely
286 associated with extending the areas suitable for farming– but attribute it to the legal
287 impediments for its use. Only 23% were acquainted with forestry certification but none
288 of them acknowledged the need for it.

289 Regarding the Yoro Model Forest, it is remarkable that: it covers an area of 321,219 ha,
290 and includes five municipalities in the Yoro Department, namely Jacón, Yoro, Yorito,
291 Sulaco and Victoria. The total number of inhabitants is 132,679, of whom 90% are of
292 European descent and 10% are from other ethnic groups (Xicaque and Tolupanes). 56%
293 of the population is rural, 68% lives in poverty and 17% in extreme poverty. The

294 average monthly income is US \$80 per capita, and there is a 32% recorded rate of
295 illiteracy and a 34% rate of infant malnutrition (RIABM, 2015).

296 130,210 ha of the area is state-owned and 191,009 ha privately owned; 60% of its area
297 is forested (36% coniferous species, 15% broadleaved species, 7% mixed and 2%
298 other), and the rest is used for farming and livestock (40%). The landscape contains a
299 vast wealth of ecosystems and flora and fauna which has led to the declaration of 22,887
300 ha as protected areas.

301 The local stakeholders on the management committee of the Yoro Model Forest
302 comprise: Xicaque tribes and the federation of Xicaque tribes, forestry groups and
303 forestry industry associations, institutions of the State of Honduras, municipal
304 authorities and the leaders of municipal associations, NGOs, PDOs (private
305 development organisations), forestry firms, private banks, the Chamber of Commerce,
306 primary, secondary and higher education institutions, (U-ESNACIFOR), community
307 organisations, agricultural and livestock farming associations, private forest owners'
308 associations, and representatives of national (such as PBPR) and international aid
309 agencies such as the Agricultural Development Project, Ayuda en Acción, Movimiento
310 por la Paz, and Visión Mundial.

311 Yoro is the site of two important sawmills (Yodeco de Honduras which produces
312 40,000 m³ and Foresta Beta which produces 16,000 m³), in addition to forestry
313 cooperatives and groups integrating 1,725 members, primarily engaged in forestry
314 production, although some work in resin production and forestry protection (Morales et
315 al., 2002).

316 With the help of the ICF, 18 forestry plantations were located in the Yoro Model Forest,
317 with areas of between 1.4 and 108 ha and created between 2005 and 2013. The species
318 they contain include mahogany, cedar, laurel, African mahogany and khaya (*Khaya*
319 *senegalensis* A. Juss.) and teak (*Tectona grandis* L. f.), and they are located near the
320 main road where a significant supply of wood could be generated from both thinning
321 and final cutting, with a number of possibilities for forest management and chain of
322 custody certification.

323 **SWOT analysis**

324 The summary of the SWOT matrix is as follows:

Strengths	Weaknesses
<ul style="list-style-type: none">• Entrepreneurial spirit• Availability and variety of raw material at very economical prices• Ability to be flexible in the manufacture of products	<ul style="list-style-type: none">• Consumption of illegal timber• Ignorance of business techniques, particularly financial and marketing skills• Quality problems of due to lack of drying• Minimal local demand
Opportunities	Threats
<ul style="list-style-type: none">• Increase in the value of the end products by improving yields and product quality.• Possibility of exploiting woods from timber plantations with forestry	<ul style="list-style-type: none">• Political instability and lack of security.• Risk of closure of the firm due to the use of illegal raw material.

certification. <ul style="list-style-type: none">• Possibility of association and strategic alliances.	
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325 This matrix coincides fairly closely with the results of the study by Mejía et al (2006),
326 although it is worth noting the following discrepancies:

- 327 - The international recognition of the quality of the products is not highlighted as a
328 strength but rather as a weakness.
- 329 - The opportunity of using the thinnings is seen as real, but is not considered
330 sufficiently important. However the improvement in the product yields is viewed as
331 relevant.
- 332 - The increase in aggregate value due to improved coatings is seen as a minor
333 opportunity, unless the issue of incorrect drying is first resolved.
- 334 - The situation of political and social insecurity is seen as a threat to the real
335 possibilities of development, as is the possible closure of workshops using illegal
336 timber as a result of the Voluntary Partnership Agreement (VPA) currently in place
337 between Honduras and the European Union, as indicated earlier.

338 **Strategic choice**

339 The following strategies can be derived from the SWOT matrix:

- 340 - Defensive strategies: purchase of legal wood; training in business techniques and
341 drying techniques.
- 342 - Reactive strategies: marketing the products outside the Department of Yoro.

343 - Adaptive strategies: promoting the purchase of legal wood and the joint installation
344 of a dryer through a business association in the form of a cooperative.

345 - Offensive strategy: seeking out strategic alliances in foreign markets to allow
346 companies to supply duly acquired, dried and mechanised furniture parts.

347 With regard to the “opportunity of the strategy”, the option that plays to the strong
348 points, overcomes weaknesses and exploits the opportunities while minimising the risks
349 of the environment is the offensive strategy.

350 The issue of the “feasibility of the offensive strategy” can be met by taking into account
351 that trends in furniture design (Daniel, 2015; Lecuona, 2012) are becoming increasingly
352 oriented towards the intangible values of products that evoke distant countries
353 (glamour), mystery and exoticism, with a clear aspiration to appear distinctive, and –of
354 course– the allure of environmentally friendly furniture. However, it is first necessary to
355 improve the organisation of the craftsmen in order to boost their production capacity,
356 increase their yield and quality, and obtain products with a certificate of sustainability.

357 The following changes are required in order for the strategy of an alliance with an
358 international company for the supply of furniture parts to be feasible (in order of
359 importance):

360 - They must only acquire legal wood with forestry certification.

361 - They must associate in a cooperative that enables them to organise as a business and
362 increase their production capacity.

363 - They must dry the wood adequately.

364 - They must acquire knowledge and skills in quality management.

365 **Strategic implementation**

366 The steps required to meet these objectives can be achieved through the following
367 actions and in the following sequence:

- 368 - Development of technical skills. This was established as the first action, both to
369 enable the workers to improve the woodworking knowledge and techniques, and for
370 them to perceive the need to organise themselves as a group and understand the
371 strategic objectives⁷.
- 372 - Formation of a cooperative, Ebanistas Yoreños LTDA. (COOPIEYOL), initially
373 comprising 35 members with statutes that are open to any workshop and with an
374 established organisational model headed by a chairman who manages the
375 administrative, financial and economic affairs of the cooperative with the support of
376 a professional manager, and elements to control the cooperative.
- 377 - Plan for purchasing timber from plantations near the city of Yoro⁸.
- 378 - Installation of a purchasing and wood-processing centre, equipped with a horizontal
379 mill saw, a solar dryer (actually three units), a planer and a thickness planer⁹.
- 380 - Developing the genuine common activity of the cooperative through the purchasing
381 centre, adjusting the prices of the timber to each of the cooperative members, and
382 sharing the problems of timber quality, service quality, cost study, and so on. For
383 the time being the activity has only just begun, and a period of induction is
384 necessary. The cooperative members are undergoing the typical teething troubles of
385 all business organisations.

⁷ This action was implemented through the project UPM/ESNACIFOR Support for the development of timber micro-industries in Yoro (WOODWORKERS), with the collaboration of the Yoro Model Forest, endowed with €35,380.

⁸ Created by the engineer Manuel Donadi, (UPM) and supported by ESNACIFOR with an endowment of €2,300.

⁹ This action was possible thanks to the project UPM/ESNACIFOR Support for the development of timber micro-industries in Yoro: Provision of a Purchasing Centre, with the collaboration of the Yoro Model Forest Association and the Municipality of Yoro, and endowed with a budget of €34.507.

386 - Business training to solve the problems of managing the cooperative and to serve as
387 the basis to be able to tender as a provider of furniture parts on the international
388 market.

389 - Strategic alliance with an international furniture manufacturing company that shares
390 the ideas of natural, certified, environmentally-friendly products, and which follows
391 a policy of social engagement through cooperation with companies in developing
392 countries.

393 The installation of the purchasing centre is pending the arrival of electricity and the
394 completion of the construction of the driers. Furthermore, of the 35 initial members
395 there are now only 16 remaining from 11 companies, but all clearly committed to going
396 forward. They purchase the timber legally –normally from plantations–, and cut,
397 process, transport and prepare it themselves at a very competitive prices compared to
398 illegal timber. They have signed a commitment with the ICF to comply with the
399 Voluntary Partnership Agreement (VPA).

400 **Conclusions**

401 The main goal of this study was to generate a strategic model that could improve the
402 wellbeing of our communities and provide a sustainable business model for the local
403 forest industries in the Yoro Model Forest. We firmly believe that the strategic model
404 proposed could provide the foundations for the sustainable development of local forest
405 industries, while maintaining a balance with the stakeholders' interests and the
406 environment.

407 We then studied its applicability to other Model Forests. Each one is unique, but they all
408 share a set of common factors such as ready availability of local raw materials, low

409 labour costs and a large number of micro-industries managed by craftsmen and
410 entrepreneurs. An analysis of the social and economic conditions in some of the Latin
411 American Model Forests in the RIABM (International Model Forest Network
412 Association) established that the model proposed in this study could have direct
413 applicability for Model Forests such as La Atlántida and Noreste de Olancho in
414 Honduras; the Chuiquitano in Bolivia, Choroteca in Costa Rica and Quezaltenango in
415 Guatemala, all of which have similar conditions to the Yoro Model Forest in Honduras.
416 Further studies are needed in order to apply this strategic model to different candidates
417 outside this geographic area or with different conditions. However it would appear that
418 forests that share these same three key factors could be potential candidates for the
419 positive deployment of this strategic model.

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