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UNIVERSITY OF OXFORD

FRP
FORESTRY RESEARCH PROGRAMME

Final Technical Report
R7475

Developing a Global Methodology and Manual for Biodiversity Guides Suitable for Use in Rural Development

Anna Lawrence

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Executive Summary

The project aimed to develop a participatory methodology that communicated accurate and useful scientific and indigenous knowledge about plants to a range of non-conventional users, including indigenous forest users, development agencies, ecotourists and protected area rangers. It did this through researching the usefulness, comprehension and impact of existing guides, in eastern Bolivia and north-eastern Brazil, before focusing on four selected user groups to produce four guides in close consultation with those groups. Throughout the project the experience of assessing other guides, and producing new guides tailored specifically to the needs of rural users, was analysed, documented, shared and refined with other client institutions. This documentation and refinement of the methodology led to the production of a manual, which has been accepted for publication in WWF's People and Plants Conservation Handbook series, published by Earthscan with a wide readership in rural development and natural resource issues.

The four user groups for whom guides were produced were:

- Indigenous communities in the Bajo Paragua buffer zone of the Parque Nacional Noel Kempff Mercado (PNNKM), Bolivia (a highly diverse area with, for example, 20% of the bird species known to occur in South America);
- Ecotourists seeking to enhance their experience of PNNKM;
- Farmers and extension workers in the extremely poor communities of the serrao and caatinga of Bahia, Brazil – the drought prone areas where cattle farming depends on dry season forage;
- Conservation agencies, NGOs and tourists in the protected (and potentially protected) areas of the caatinga.

All four guides have been developed, tested with their respective user groups and finalised. Three of the four have been published, with one of those now in reprint using funds sought from the Brazilian government.

We are also delighted to have found a highly regarded and widely disseminated publisher for the field guides manual, in the shape of the People and Plants Programme, WWF, and their series of Conservation Handbooks published by Earthscan. The manual was produced in collaboration with another DFID FRP research project R7367, which tested identification tools in three further countries. The project leader, Dr William Hawthorne, wrote the more botanical chapters of the manual, while the project leader of R7475 (this project) wrote the more social and participatory chapters. However our experiences in each set of partner

countries supported each other's conclusions, and we feel the result represents consensus on the methodological approach needed.

Acronyms

APNE	Associação Plantas do Nordeste
ASPTA	Assessoria e Serviços a Projetos em Agricultura Alternativa
BAPs	Biodiversity Action Plans
CAA	Centro de Assessoria do Assuruá
CAL	Campo Alegre de Lourdes
CNIP	Northeastern Centre for Plant Information
CIBAPA	Central Indigena del Bajo Paraguá
ETFRN	European Tropical Forest Research Network
FAN	Fundacion Amigos de la Naturaleza
GARRA	Grupo de apoio e resistência dos agricultures
IUCN	World Conservation Union
MDG	Millennium Development Goal
NGOs	Non-governmental Organisations
NHM	Natural History Museum
ODA	Overseas Development Agency
PAMEB	Participatory assessment, monitoring and evaluation of biodiversity
PM&E	Participatory monitoring and evaluation
PNE	Programa Plantas do Nordeste
PNNKM	Parque Nacional Noel Kempff Mercado
SASOP	Serviço de Assessoria a Organizações Populares Rurais
SBSTTA	Subsidiary Body on Scientific Technical and Technological Advice, of the Conference of Parties implementing the Convention on Biological Diversity
SIDT	Subprograma de Informação, Disseminação e Treinamento [Information, Dissemination and Training Subprogramme] (of PNE)
UEFS	State University of Feira de Santana
UNCED	United Nations Conference on Environment and Development
UNEP	United Nations Environment Programme
WCMC	World Conservation Monitoring Centre

Background

Researchable constraints:

Although not explicitly stated (because not required at the time of writing the proposal), the researchable constraints are:

"Sustainable management of biodiversity by forest/tree-dependent poor people is inhibited by low ability to identify species in a way that can be communicated with extension workers, scientists, ecotourists, and conservation agencies, which would thereby enhance their access to both information about the species, and revenue associated with knowledge about those species."

Summary of any significant research previously carried out

Writing species guides is not a new activity, but in the context of rural development such guides have (often implicit) objectives over and above the mere propagation of knowledge. Furthermore, they are increasingly being prepared for (and sometimes by) communities and cultures who do now have the same educational background or means of communication as the European and American authors. As a consequence of the Convention on Biological Diversity, all the signatories have a commitment to improve the conservation of biological

resources, while at the same time increasing their economic value. Both DFID and the UK Darwin Initiative, launched in the wake of the United Nations Conference on Environment and Development (UNCED) at Rio, 1992, have funded the production of a number of guides designed to help a range of users identify species and learn more about their characteristics, often with a practical objective such as enabling environmental monitoring or encouraging the cultivation of such species.

There are two areas where literature is relevant and was sought: relating to botanical identification, and to the participatory process. In the project memorandum we noted a great scarcity of literature on the former. We have subsequently discovered Steve Tilling's work (Tilling, 1984) and have benefited from his advice at the time of setting up the project. He made available to us course materials used in training in botanical identification, and we have been able to compare our own methods for testing keys with those used by him and his colleagues. The final report for R7367 contains further detail on research relating to identification methods; our focus in R7475 is on the participatory production methods and their efficacy.

Another paper that was published towards the end of our research project, Stevenson et al (2003) reiterates the importance of our topic and reviews innovative approaches to field guide production – the timing of publication allowed us to draw on this work in finalising our manual.

We also drew on existing work on ethnobiology (Berlin 1992, Cotton, 1996), noting for example the rarity of all local informants agreeing on the same name for a given species, although a given name may be used for quite distinct species, or by different groups of people for distinct species, or to refer to all the species of a given genus. Such work was used as the basis for developing our data collection procedures. In writing up the manual, works published during the period of our research also supported our methodological interpretation (Cunningham, 2001, Dutfield, 2000, Laird 2002).

Finally in terms of multi-stakeholder, participatory methodologies, while the components were more-or-less standard (e.g. Pretty et al., 1995) we are aware of no other work which brings them into a process for production and testing of field guides.

Berlin B. 1992. Ethnobiological classification : principles of categorization of plants and animals in traditional societies. Princeton University Press, New Jersey.

Cotton C. M. 1996. Ethnobotany: principles and applications. John Wiley & Sons.,

Cunningham A. B. 2001. Applied Ethnobotany: People, Wild Plant Use and Conservation. Earthscan, London.,

Dutfield G. 2000. Intellectual property rights, trade and biodiversity. Earthscan / IUCN,

Laird S. 2002. Biodiversity and Traditional Knowledge: equitable partnerships in practice. Earthscan, London.

Martin G. J. 1995. Ethnobotany: a methods manual. Chapman and Hall, London.

Pretty J. N., Guijt I., Thompson J. and Scoones I. 1995. Participatory Learning and Action: a trainer's guide. IIED, London.

Stevenson, R. D., W. A. Haber, and R. A. Morris. 2003. Electronic field guides and user communities in the eco-informatics revolution. Conservation Ecology **7**(1): 3. [online] URL: http://www.consecol.org/vol7/iss1/art3

Tilling, S.M. 1984. Keys in biological identification: their role and construction. Journal of biological education 18:293-304.

Demand for the project:

There are two aspects to the demand: the need for guides, and the need for a methodology. Documented needs for guides were already widespread at the time of writing our project

memorandum, and are covered in detail in that document (see annex 1). Our identification of demand was further supported by reviewing regional statements on sustainability development, National Biodiversity Strategies and Action Plans, and by consulting DFID Natural Resources Advisers in the partner countries.

Professor Heywood (1997) notes: 'The preamble to the Convention On Biological Diversity states that the Contracting Parties are 'aware of the general lack of information and knowledge regarding biological diversity and of the urgent need to develop scientific, technical and institutional capacities to provide the basic understanding on which to plan and implement appropriate measures.' At the Field Guides for the Future meeting held at the NHM (Natural History Museum) in April 1998 the need for field guides to tropical organisms was clearly identified as high priority for taxonomists working in the developed world. The meeting also identified several problems with the current provision of field guides in the developing world, most notably the lack of attention paid to the real and perceived needs of the end-users, or audiences. It is not enough to provide a guide and expect people to use it - a truly useful guide must involve some assessment of the audience and its needs.

The Summit of the Americas in Santa Cruz, Bolivia, 1996 produced the Declaration of Santa Cruz, on sustainable development in the Americas, noting (emphasis added):

11. We emphasise the following elements to guide our Plan of Action for sustainable development of the Americas:

- *promotion and strengthening of citizen's participation, ensuring that they possess sufficient information to arrive at and carry out decisions which foster sustainable development.*
- *Improvement of the people's access to knowledge ... To that end, channels of dialogue, dissemination and exchange should be opened*
- *Achievement of the purposes set forth in the Plan of Action will require not only an optimised use of the existing resources but also an adjustment in the policies which use a different methods for evaluating natural resources and traditional know-how.*

And from the Action Plan
Initiative 24: develop and share information and technologies on sustainable forest management, including participation by the stakeholders on forest management policies
Initiative 25: develop mechanisms for sharing information among the private sector, official public sector, educators, academics, indigenous groups, local communities, forest dwellers, non-governmental organisations (NGOs), and international organisations on sustainable forest management and biodiversity

The production of field guides has been identified as high priority by many nations in their National Biodiversity Action Strategies and the provision and dissemination of taxonomic information at global, regional and local levels has been identified by SBSTTA (Subsidiary Body on Scientific Technical and Technological Advice, of the Conference of Parties implementing the Convention on Biological Diversity) as of global importance for the implementation of the Convention on Biological Diversity.

Our pre-existing links with DFID funded bilateral projects (British Tropical Agricultural Mission in Bolivia, SIDT in Brazil) enabled us to target this research effectively at the needs of their clients. SIDT itself was established in response to demand from NGOs including ASPTA (Assessoria e Serviços a Projetos em Agricultura Alternativa), Caatinga, and Oxfam who identified the shortage of information on native plants as a constraint to rural development.

Demand for the PAMEB conference

Outputs 7 and 5 were added in 2002, in response to a need emerging at meetings of the Forest Policy Working Group of DFID / UK Tropical Forest Forum, where the number of DFID funded research projects into participatory monitoring and evaluation (PM&E) of biodiversity was remarked upon, but also the inability of researchers to translate that into implications for forest users and managers. Approximately 40 letters and emails were written in connection with funding however, before European Tropical Forest Research Network (ETFRN), Tropenbos and FRP agreed to fund this as an internet conference with therefore much reduced costs (no travel and subsistence).

Project Purpose

Strategies for improved **sustainable livelihoods and income generation** for poor landless families developed and promoted

This was changed in May 2002 from: New knowledge applied to problems in forest resources management, benefiting poor farmers and landless people through improved management of forest resources

This project has evolved from an original four outputs to eight, mainly through incremental incorporation of related work. Consequently the outputs have expanded from a focus on field guides and their role in sustainable rural livelihoods, to a wider focus on the role of biodiversity and participatory forest management, in sustainable rural livelihoods.

Research Activities

The following summarises key points in the development of the project, but participatory activities were on-going. The full cronogramas of Fundacion Amigos de la Naturaleza (FAN) and Serviço de Assessoria a Organizações Populares Rurais (SASOP) activities are provided in annexes 5 and 6. These were much-revised, essential tools of the process.

It is particularly important to point out how research process and objectives were clarified jointly with collaborators and target institutions in this project, which relied strongly on a participatory process approach to develop appropriate outputs and to document, share and validate the experience of doing so. It was the latter that proved the real challenge and which led to the need to extend the project by an unanticipated 18 months.

In Bolivia, this participatory guide production process was led by FAN, an NGO contracted by the government to manage Parque Nacional de Noel Kempff Mercardo (PNNKM). FAN collaborated with the Centro de Investigacion Agricola Tropical (CIAT Bolivia), long-term partner of the former Overseas Development Agcency's (ODA's) British Tropical Agricultural Mission in Santa Cruz Bolivia. FAN already had in-depth botanical knowledge of the area, and a close working relationship with the indigenous communities, while CIAT was able to provide wider geographical access to test existing guides, recruit workshop participants, and apply participatory workshop methods in PNNKM.

In Brazil, initial project activities were developed through the Asociacao Plantas do Nordeste (APNE) (an association of NGOs, universities and government agencies with the Royal Botanical Gardens Kew, to promote local knowledge and use of plants in north-eastern Brazil), and in particular ASPTA (Assessoria e Serviços a Projetos em Agricultura Alternativa). They provided links with a large network of potential collaborators, of whom SASOP emerged as the principal target institution, in collaboration with the Universidade Estadual Feira de Santana (State Unviersity of Feira de Santana) UEFS, and the local NGOs in the semi-arid area selected for the study.

Full consultation with all relevant stakeholders was essential at all stages. Hence the activities were organised in such a way that very wide consultation (with the additional objective of awareness-raising) about the project process and requirements for field guides was followed by more specific and local consultations with identified user groups for the guides. Consultees are listed in the participant lists in annexes 3, 4, 7, 10, 12, 13, 15 and 16. This in turn was followed by workshops with users to test components and drafts of the guide, which served not only to ensure that they met the requirements of the users but also to publicise the guides and their production process, and to enhance uptake by the users who, at least in the case of the two community-based guides, very much saw the guides as their product. Three of the four guides are now published (annexes 38, 42 and 43) and the last is awaiting only the prior publication of the taxonomic revision. The number of launches (annexes 39 and 41), both local and city-based, for each of these guides, completed a process that combined consultation with information and dissemination. Each of these activities is indicated below.

The most challenging aspect of this research proved to be the documentation of experiences. This resulted partly from the fact that the project used three different languages, and partly that the collaborators (particularly those with a scientific education) had little experience of such personal reflection and documentation. The exceptionally large research team that developed in Brazil addressed this specifically by holding regular meetings and documenting in some detail the proceedings – some examples of the minutes from these meetings are included in the list of annexes (21, 22, 23). A similar approach was taken in Bolivia when field trips involved staff from several different institutions (see annexes 7 and 14), which required reports to be co-authored and agreed amongst the team. However most of the work in Bolivia was led by FAN based on its existing close relationship with the indigenous communities of the Bajo Paragua buffer zone. An early plan to produce a series of working papers was stifled by the time and cost of translation, but led instead to the production of two project bulletins, the first in all three languages, and the second specific to Bolivia (see annexes 19, 20 and 24), as well as two internal discussion documents (annexes 11 and 15). Finally we developed an approach whereby each national research team in Bolivia and Brazil agreed with the project leader a list of topics or themes to be written up as 'boxes' to be included in their training courses, and for potential inclusion in the manual. Many of these have been translated and incorporated directly, or merged with experience from other countries and included in the chapters of the manual, which includes all project collaborators as co-authors of chapters or boxes (see annex 40).

Finally, revisions to FRP policy provided us with the very welcome opportunity to design and deliver training courses. We developed a broad framework for these at the project maturity workshop (see annex 31), at which Tierra Viva, an NGO specialising in training, participated; and then each national team developed and delivered their own training materials courses. Reports and materials are given in annexes 32-35.

The internet conference

This was developed as a separate but linked set of activities. An issues and options paper was prepared and circulated; researchers and fieldworkers were found and requested to prepare introductions for each of 6 themes, and the conference was advertised through a number of e-lists. In the event 300 participants signed up from 55 countries, covering the six themes described in annex 36, and with daily summaries to guide the discussion. Digestion of the results led to a one-day policy seminar in DFID's offices, and several requests for follow-up publications (annexes 43-45) and training courses, including one at the United Nations Environmental Programme (UNEP) World Conservation Monitoring Centre (WCMC), Cambridge (Feb. 2002).

Table 1. Key stages in the research activities.
Full cronogramas in annexes 5 and 6.

Year	Date	UK	Bolivia	Brazil	Annex
1999	25 June	Desk review methods for preparing guides; Planning workshop, Reading University (Where AL was based at that time), with staff of R7367, and invited advisers from Royal Botanical Gardnes, Kew, Natural History Museum and Field Studies Council			
	22-24 July	AL participates.	Project planning workshop	Senior collaborators from Brazil participate in workshop	4
	26 July	AL participates.	Stakeholder workshop – representatives of 20 NGOs, government organisations and universities share experiences and tips on successful guides, and define broad needs for guide methodology	Senior collaborators from Brazil participate in workshop	3
	14-29 Nov	TM participates.	Month of fieldwork in Bajo Paraguá to test existing guides with users, define user needs and make initial plans for guide production. Survey of NGOs and guide use in other parts of Santa Cruz Dept, with CIAT: including CIDOB, APCOP, CIPCA, CEDICA, FAN, CCM, PROMABOSQUE, CABI, CARE, BOLFOR		7

Year	Date	UK	Bolivia	Brazil	Annex
	Dec-Jan		First, unsuccessful attempt to define needs with ecotourists – who were difficult to pin down. Questionnaire revised and circulated through travel agencies.		
2000			Impact assessment of existing field guides, in the sub-andean Valles of Santa Cruz, and the northern colonisation zone.		8, 9
	16 March	AL research visit to Bolivia, Brazil		Needs identification workshop with agricultural support workers, Paraiba.	12
	Mar		Web page on FAN. www.fan-bo.org		
	3-20 April		Planning and data-gathering workshops in the communities of Bajo Paragua.		14
	20 May			Introductory workshop in Campo Alegre de Lourdes to define community expectations and outline needs in terms of guides 20 May; Species long lists; Field work to collect specimens.	16
	30 May			Workshop with potential users of Guide A (technical guide to 257 spp of forage legume of the Bahian caatinga).	17
	May-June		Training in use of Alice software for botanical database creation FAN staff visit Brazilian project	Training course and workshops at which FAN staff participate. Exchange of experiences at planning meeting 16 June 2000.	

Year	Date	UK	Bolivia	Brazil	Annex
	June			Fieldwork with photographer to create illustrations for tests (see August)	
	November	AL research visit to Bolivia, Brazil			
2001	5-20 May	AL research visit to Brazil and Bolivia	Annual monitoring meetings: mainly city-based, reviewing methods and outputs with FAN and CIAT. Number of collaborating communities in Bajo Paragua extended to 5, to include Bella Vista, the smallest and most remote community, with the most indigenous descent and culture.	Annual monitoring meetings: Salvador-based, supporting staff changeover (3rd change in staff since project start – went smoothly after this)	
	14-18 May			Internal planning workshop: week of planning	21
	August		Specimen identification completed.		
	13-14 August			Remanso, Bahia: tests of illustrations with users.	
	Nov / Dec	Preparation of issues and options paper on participatory monitoring and evaluation of biodiversity.			Included in CD-ROM of conference proceedings (29).
2002	Jan 9-25	International internet conference on PM&E] of biodiversity (henceforth PAMEB – participatory assessment, monitoring and evaluation of biodiversity); 300 participants, 55 countries.			29

Year	Date	UK	Bolivia	Brazil	Annex
	15 Jan	Proposal submitted to Earthscan for publication of field guides manual			27
	4-22 March	AL visit to Bahia.		Workshop to test keys, Feira de Santana, 13 March. Workshop to test mock-up of farmer guide, Irecê: 18-19 March.	28
	19 April	Meeting with William Hawthorne and Earthscan staff: decision that AL would take the lead on finalising manual and liasing with publishers. Request for project extension based on this and need to await inputs from other.			
	May		Workshops in Parque Nacional Noel Kempff Mercado to test and finalise ecotourist and indigenous community guides, by CIAT.		26
	21 May	One day conference for policy makers / senior environmental advisers, to tailor recommendations from PAMEB internet conference to their policy information needs.			29
	14-23 July			Botanical Congress, Brazil; project display with poster and draft guides.	
	Sep			Project extended to prepare training materials	
	Sep 25-27		Project **maturity workshop**, facilitated by Tierra Viva; participants from interested NGOs and community organisations from Bajo Paragua.	Project staff from Brazil participate in Bolivian workshop	31

Year	Date	UK	Bolivia	Brazil	Annex
2003	25 March			Test of final draft, guide to forage legumes of the Caatinga (Guide A). publication since then delayed by professionals' need for prior publication of taxonomic treatment.	28
	April	Publication of PAMEB policy briefing note.			36
	April		Launch of community and ecotourist guides, with special events in Santa Cruz City and San Ignacio municipality.		41
	5 April			Launch of *Leguminosas Forrageiras da Caatinga. Espécies importantes para as comunidades rurais do serao da Bahia* In participating communities	
	9-11 April		Training Course "Metodologías Participativas Para La Elaboración De Guias De Campo De Facil Uso"		32,33
	10-11 April			Project evaluation seminar (Brazilian team)	37
	11 April			Launch of *Leguminosas Forrageiras da Caatinga. Espécies importantes para as comunidades rurais do serao da Bahia* in Salvador city.	39

Year	Date	UK	Bolivia	Brazil	Annex
	12 April			Launch of *Leguminosas Forrageiras da Caatinga. Espécies importantes para as comunidades rurais do serao da Bahia* With collaborating NGOs FARRA and Ipeterras	
	28-30 May			Training Course: 'Como elaborar guias de campo de biodiversidade que atenda a demanda do publico-alvo'.	34, 35
2004	Jan	Chapters 1-6 of the manual submitted to Earthscan and FRP for review			
	May	Chapters 7-10 of the manual submitted to Earthscan and FRP for review			
	Sep	Fully revised manual submitted to Earthscan via Martin Walters (People and Plants Programme, WWF)			40

Outputs

Output	Description	Annex
1	Existing field guides assessed for usability, accuracy, and impact on rural livelihoods and biodiversity, among four user groups: • Small-scale farmers in forest-edge communities and semi-arid caatinga vegetation • Field staff and extension workers in such communities • Rangers in protected areas • Ecotourists This was achieved through workshops held in Paraiba and Bahia, with farmers, extension workers and conservation staff; a national workshop in Bolivia, and local workshops in Bajo Paragua (in the buffer zone of PNNKM), and through individual interviews with authors, users and policy makers. The results were documented in project reports for immediate circulation to target institutions; they were also used in the further preparation of guides, and incorporated into the manual on guide production.	3 7 8 9 12 13
2	User groups, and their respective requirements for biodiversity guides, characterised. This output is complementary to output 1. It was conducted in a participatory way in the areas identified for guide production under output 3, in other words with the involvement of the potential users themselves. The results were documented in project reports for immediate circulation to target institutions; they were also used in the further preparation of guides, and incorporated into the manual on guide production.	10 16 17
3	Biodiversity guides produced for two user groups in each country. The project did not engage in basic botanical data collection but instead selected a biodiverse area in each of Bolivia and Brail, where extensive and quality botanical data had already been collected, to develop two guides. This allowed comparison of the process and outcome of development of different guides for different user groups from the same data set. The guides produced were: In Brazil, A. technical identification guide to the whole set of forage legumes of Bahia, for use by agronomists, NGOs; and for conservation / botanists / park wardens. Publication of the guide was delayed by financial difficulties related to the size and need for several hundred illustrations; and by the wish of Dr Luciano Queiroz to publish his taxonomic revision before the guide. This requirement was not made clear until about halfway through the project. The potential conflict of interest has now been resolved; Dr Queiroz' taxonomic revision will be published at the end of 2004 (according to reassurances from both PNE and Royal Botanic Gardens, Kew), with Guide A to follow shortly (although financial support is still being sought). Nevertheless, the process of defining and testing the keys, descriptions and illustrations was an important component of the project from which the lessons were incorporated into output 4. B. *Leguminosas Forrageiras da Caatinga. Espécies importantes para as comunidades rurais do serao da Bahia*, a practical guide, for use by community workers, to the 30 most promising species – including cultivation and nutrition details. ***600 copies printed, now sold out and funding has been successfully sought and obtained for reprinting.*** In Bolivia C. One guide for ecotourists, of the area around Bajo Paragua, Noel Kempff Mercado National Park (*Biodiversidad del Parque Nacaional "Noel Kempff*	Guides B and D already supplied to FRP; 28 38 39

	Mercado". Principales Ecosistemas y Especies, by Vargas, I G and Jordan, C G). D. One guide to the useful tree species, for indigenous communities involved in sustainable forest management in the buffer zone (*Principales plantas utiles del Bajo Paragua. Guia de Campo, Edited by Vargas, I G and Jordan, G C).*	
4	Manual of methodological guidelines for preparing biodiversity guides. The whole project (and the three preceding outputs) link into this most important output. We were delighted that Earthscan and WWF's People and Plants Programme accepted our proposal for inclusion of this manual in their Conservation Handbook series, and the manual is now in press as *Plant identification, conservation and management: methods for producing user-friendly field guides.* Crucially the production of this manual is a collaborative effort with William Hawthorne, principal investigator of R7367, *Comparison and development (in Grenada, Cameroon & Ghana) of tropical forest plant field guide formats with a handbook to assist production of field guides,* led by William Hawthorne. The many meetings required to develop consensus on the structure and content led us to move forward from an originally planned two-volume manual, to instead integrate the participatory process components (largely R7475) with the more technical botanical components (largely R7367).	27 40 and see: 4, 22-24 30-31 37 for document-ation of process
5	Policy and developmental recommendations summarised and disseminated through a Policy Briefing Note. Our briefing note, *Participatory assessment monitoring and evaluation of biodiversity. A briefing paper for planners, policy makers and advisers,* was finalised and published through our website www.eci.ox.ac.uk/humanecology.htm in August 2003**.** The focus of this policy briefing note was participatory monitoring and evaluation of biodiversity, and relates to output 7 rather than to outputs 1-4. We would however be happy to produce an *additional* policy briefing note relating to the production of field guides.	36
6	Results of ZF0118 ('Researchable constraints in participatory forest management) shared at the IUCN [World Conservation Union] workshop, Uganda. This output is not directly connected with the other outputs of the project. Tabitha Mason participated in the Regional Workshop On Community Involvement In Forest Management in Eastern and Southern Africa Kampala, Uganda, June 2000	18
7	Results of Workshop on PM&E of Biodiversity analysed, summarised and disseminated. In collaboration with the European Tropical Forest Research Network and Tropenbos (Netherlands), we convened, analysed and disseminated an electronic conference entitled *Participatory assessment, monitoring and evaluation of biodiversity. 7-25 January 2002***,** followed up by an international policy workshop at DFID head office, *Policy implications of participatory biodiversity assessment. ETFRN International Seminar for Policy-Makers and Implementers, 21 May 2002.*	29 42-44
8	Training materials for field guide production prepared and tested. Project partners in each country (Bolivia and Brazil) organised workshops to test training materials, as follows: Santa Cruz, Boliva 9-11 April 2003 "Metodologías Participativas Para La Elaboración De Guias De Campo De Facil Uso" Salvador, Brazil: 28-30 May, 2003 'Como elaborar guias de campo de biodiversidade que atenda a demanda do publico-alvo'.	32 33 34 35

Contribution of Outputs

The project helps policy makers to address the question:

> *How to reconcile the need for national assessment, monitoring and reporting with the increasing focus on involvement of all relevant stakeholders and particularly indigenous / local communities?*

It relates to the following Millennium Development Goals (MDG):

MDG 1: *Eradicate extreme poverty*: While obviously a field guide cannot contribute directly, the guides produced through this project, and those which will be produced through use of the manual, can contribute to the reduction of rural poverty through:

- Sale of the guide by the communities producing it
- Increased ecotourism activity
- Increased ability to communicate botanical knowledge with state agencies and hence secure rights to land and forest management
- Enhanced stability of rural communities through protection and validation of traditional knowledge; cultural strengthening.

MDG 3: *Promote gender equality and empower women.* Through the participatory methodology, and attention to inclusion of all stakeholder groups in the production of the guides, women and men have equal say in decisions made about the guide, and their knowledge contributes to equal extent. The effects of this were particularly evident in the production of guide D, where many of the workshops represented women to a much greater extent than they were accustomed to (constituting more than 50% of the participants).

MDG 7: *Ensure Environmental Stability.* In developing a field guide to plants in the surrounding area / of common use, the value of these natural resources to local people will be enhanced, slowing the rate of deforestation. Furthermore the guides help forest users to consolidate and communicate their knowledge of the resources, thereby assisting in securing their rights.

More than 150 countries are now developing and implementing biodiversity action plans (BAPs), in line with Article 6(a) of the Convention on Biological Diversity. Many have sought to decentralise and/or enhance participation in biodiversity conservation and management, including through the development of sub-national and local BAPs. This meshes with growing concern to link biodiversity management with sustainable livelihoods and poverty reduction, in light of the Millennium Development Goals and national poverty reduction strategies. PAMEB responds to this agenda, providing a tool to integrate the local custodians and users of biodiversity into the full planning cycle.

Specific guides support indigenous people's need to enhance healthcare within remote communities while conserving cultural values; nutritious fodder production in the dry season in impoverished NE Brazilian communities; attraction of ecotourists to biodiverse areas. The manual provides support to a much wider range of stakeholders to produce guides which respond to social and economic needs of users. Both guides and manual help in implementation of Convention on Biological Diversity specifically in conserving local knowledge, supporting sustainable use of natural resources and facilitating monitoring of biodiversity.

The *process* of negotiating, observing and analysing indicators may bring about more change than the data gathered itself, and in particular can enhance benefit-sharing, as well as be more sustainable than externally led processes. However to achieve this, changes in education, training of scientists, and institutional networking are needed.

The developmental implications which should be understood and taken up by development agencies and/or policy makers:

- acknowledge the rights of local people or the public to participate in natural resource management;
- consult, co-design, test and validate identification aids with the potential end users;
- enhance tenure security for local forest users;
- recognise and protect the rights of knowledge-holders;
- provide budgetary support for guide production and training in identification;
- support capacity building to enable government institutions to facilitate and appreciate PAMEB;
- support capacity building at local level.

The developmental implications and promotion pathways to target institutions and beneficiaries

The target institutions are:

- In Bolivia: FAN, CIAT
- In Brazil: SASOP, SIDT, UEFS, ASPTA and APNE

Of these, SASOP and ASPTA have a particular concern with rural poverty; CIAT with sustainable agriculture, SIDT with information support to NGOs and government agencies supporting the rural poor, FAN and APNE in nature conservation with the effective collaboration of rural people, and UEFS in research and education. It is SASOP, ASPTA, FAN, APNE and SIDT therefore who will use the people-centred focus of this methodology to greatest effect, and have already delivered training courses to a combined 32 institutions in Bolivia and NE Brazil. In Bolivia, the relationship between FAN and the Ministry for the Environment is a particularly close one, FAN being contracted by the government to manage the PNNKM. Furthermore because of the decentralisation of forest management budgets, and recent land reform to allocate stronger rights to community ownership and management, there is a receptive institutional context.

Uptake pathways have focused on stakeholder involvement at planning, validation and publication stages. Key components are as follows.

Annex 3 describes a seminar-workshop held two days after our own inception workshop, with 24 participants from all over Bolivia (plus the Brazilian project partners). Their interest was enhanced by sharing their own experiences, and the report was circulated to all participants and invitees.

Annex 12 and 13 represent similar workshops in Brazil, which because held later in the research process were less exploratory and more focused on evaluation of a range of existing guides. Similar to the Bolivian workshop, participants came from a wide range of NGOs and a few government agencies in the states of Bahia and Paraiba, Brazil.

Newsletters were produced in a simple 4-page style that was easy to distribute (annexes 19, 20 and 24 – also in Portuguese but this one is out of stock).

In terms of projects results, the project maturity workshop (annex 31) and training courses (annexes 32-35) focused on ensuring uptake of the methodology, while the attention paid to launching the guides in both local (municipal) and national (annexes 39 and 41) fora indicates the uptake pathways for the guides themselves.

Uptake of the PAMEB internet conference has been facilitated by the very wide network managed by ETFRN; by the one-day policy workshop funded by FRP; and by opportunities to publish chapters in IUCN and WCMC publications with large readerships of practitioners (see annexes 44-46).

The following further dissemination products would be desirable (time and / or funds permitting):

- Policy briefing note relating specifically to Field Guides.
- Paper on the role of species identification in participatory national resource management.
- Manual available in Portuguese. Earthscan supports translation and circulation of this series into French and Spanish; we are aware that there would be an important market in Brazil that could be addressed if a Portuguese language version were available.

List of annexes.

Those in bold are available as hard copy only. The annexes are provided in numerical order except where they are so large that they merit a separate volume.

Annex	
1.	Project memorandum and budget.
2.	Lawrence, A. 1999 A Methodology for Preparing Plant Field Guides in the Tropics. ETFRN News 29. www.etfrn.org/etfrn/newsletter/nl29_oip.html#ametho
3.	Seminario taller para la preparación de guías de biodiversidad adecuadas para el desarrollo rural, 26 July 1999. FAN / CIAT Santa Cruz, Bolivia [Proceedings of the national seminar-workshop on preparation of biodiversity guides for rural development.]
4.	Proceedings of Planning workshop, 22-24 July, 1999, Santa Cruz
5.	Full cronograma for activities led by SASOP, Brazil
6.	Full cronograma for activities led by FAN, Bolivia
7.	a) Mason, T. Magarinos, E; Soliz, B; Leon, J; (1999) Report on the assessment of user group needs and the usability of biodiversity guides in Bolivia, 24th October – 4th December 1999. University of Reading, CIAT, FAN. Internal Report b) Magarinos, E; Soliz, B; Leon, J; Mason, T. (2000) Inventario de guias de biodiversidad existentes en Santa Cruz. [inventory of existing field guides in Santa Cruz.] Internal report.
8.	**Magariños, E, Mariaca, R. 2000. Validacíon de guías de campo en la zona norte de colonizacion. Area circundante al Parque Nacional Amoró CIAT, Santa Cruz, Bolivia. [Validation of field guides in the northern colonisation zone. The area around the Amboró National Park]**
9.	**Magariños, E, León, J & Solíz, B. 2000 Validacíon de guías de campo en la zona de los valles mesotermicos. Una apreciación de ténicos, agricultures y autores. CIAT. [Validation of field guides in the mesothermic valley. An assessment of *'Arboles y arbustos para sistemas agroforestales en los valles interandinos de Santa Cruz, Bolivia'* by technicians, farmers and authors.]**
10.	Jordán G., C & Vargas C., I. (FAN) November 2000 Informe del taller interno de FAN para la preparacion de una guias de campo para ecoturistas del Parque Noel Kempff M.
11.	Internal working paper: methodology for assessing impact of field guides
12.	Memória da Oficina de Trabalho com AS-PTA, 16 de março de 2000. [Workshop to evaluate field guides with agricultural support workers, Paraíba]
13.	Workshop proceedings, Workshop to evaluate field guides with NGOs and extension workers, 28 March 2000, Salvador Brazil
14.	Lawrence; Vargas; Trenier; Jordan; Leon. 8 – 15 April 2000. Informe de viaje. [trip report]. Proyecto Guias de Campo.
15.	Working Paper 3. Field guides and policy: Informing and supporting information [used as internal working document]
16.	Memoria da oficina de trabalho com comunidades em Campo Alegre de Lourdes. Proceedings of the workshop with communities in Campo Alegre de Lourdes, 20 May 2000
17.	Proceedings of the workshop with potential users of Guide A (technical guide to 257 spp. of forage legume of the caatinga). 30 May 2000
18.	Researchable Constraints in Participatory Forest Management (PowerPoint presentation at Regional Workshop On Community Involvement In Forest Management in Eastern and Southern Africa Kampala, Uganda June 2000)
19.	The Field Guides Project – Newsletter 1. Introducing the Field Guides Project. October 2000

20.	The Field Guides Project – Proyecto Guias de Campo Boletin No 1: Presentando el Proyecto Guias de Campo. October 2000
21.	**Costa, J. 14 & 18 May 2001** **Projecto Guias de Campo de Biodiversidade. Memoria de Semana de Planejamento do Projeto Guias de Campe de Biodiversidade.**
22.	Nunes, T S & Costa, J. 23 April 2001 Memória de reunião de coordenação do Projeto Guias de Campo de Biodiversidade [Proceedings of a coordination meeting of the Field Guides Project]
23.	Costa, C A S & Nunes, T S 25 May 2001. Memória da Reunião do Projeto Guias de Campo de Biodiversidade realizada na Uyniversidade Estadual de Feira de Santana (UFS). [minutes of the committee meeting for the Field Guides Project]
24.	Jordan, C & Vargas, I. Julio 2001 Proyecto Guias de Campo en Bolivia – Boletin Informatio del proyecto Guias de Campo – Bolivia.
25.	Acuerdo de trabajo entre La Central Indigena del Bajo Paraguá (CIBAPA) y la Fundacion amigos de la naturaleza (FAN). Working agreement between CIBAPA and FAN
26.	Bolivia: informe validacion (final test of full guide, Bajo Paragua and PNNKM)
27.	Book Proposal to WWF-People and Plants Programme / Earthscan Jan 15 2002
28.	**Test pages of Guia A, Brazil**
29.	PAMEB CD Electronic Workshop (7 – 25th January 2002) and policy seminar (21st May 2002) convened by the Environmental Change Institute, University of Oxford.
30.	**Oficina de trabalho: testando formatos de identificaçõa (chaves) para o guia de campo UEFS. [Workshop for testing different formats for identification keys, guide A]. 11th March 2002.**
31.	Project Maturity Workshop Taller de lecciones aprendidas del proyecto guias de biodiversidad [Workshop on lessons learned from the Field Guides Project. Samaipata, Santa Cruz, 25-27 September, 2002]
32.	Informe del curso “metodologías participativas para la elaboración de guias de campo de facil uso” FAN 9-11th April, 2003. [Training course to test materials on “Participatory methods for the production of user friendly field guides” Santa Cruz.]
33.	List of participants in above course.
34.	Memoria do curso: ‘Como elaborar guias de campo de biodiversidade que atenda a demanda do publico-alvo’. [Training materials and report for course on producing field guides, Brazil: 28-30 May, 2003]
35.	List of participants in above course.
36.	PAMEB policy brief. August 2003. Participatory Assessment Monitoring and Evaluation of Biodiversity. A briefing paper for planners, policy makers and advisors.
37.	Stradmann, M T S & Nunes, T S October 2003. Relatório técnico final do projeto guias de campo de biodiversidade. Período de Março de 1999 a Julho de 2003. Dossiê metodológico dos resultados do projeto [Final technical report for the Field guides project, March 1999-July 2003. Methodological dossier of project results Salvador.] Brazil Methodological Analysis
38.	Biodiversidad del Parque Nacional “Noel Kempff Mercado” Principales Ecosistemas y Especies. Guia Para Ecoturistas. CD-ROM
39.	**Launch and distribution of Guide B.**
40.	Manual: Lawrence A. and Hawthorne W. (in press) Plant identification, conservation and management: methods for producing user-friendly field guides. Earthscan, London.
41.	Invitations and participant lists, launch of field guides, Bolivia

42.	**COSTA, J.A.S., NUNES, T.S., FERREIRA, A.P.L., STRADM,ANN, M.T.S. AND DE QUEIROZ, L.P. 2002 Leguminosas Forrageiras da Caatinga espécies importantes para as comunidades rurais do sertão da Bahía. Universidade Estadual de Feira de Santana, Feira de Santana, Brazil. 116 pp.** ***Already sent to FRP***
43.	**Vargas, I G and Jordan, G C. 2002. Principales plantas utiles del Bajo Paragua. Guia de Campo. FAN, Santa Cruz, Bolivia** ***Already sent to FRP***
44.	Lawrence A. (2002) The unmeasurable whole: assessing forest biodiversity with multiple stakeholders. Proceedings of the World Forestry Congress, Quebec City for October 2003. http://www.fao.org/DOCREP/ARTICLE/WFC/XII/0822-B1.HTM
45.	**Lawrence A. (2003) Participatory ecological monitoring in protected areas. In: Jaireth H. and Smyth D. (eds) Innovative Governance: Indigenous Peoples, Local Communities and Protected Areas, pp. 249-267. IUCN. Ane Books, New Delhi.**
46.	Lawrence A. and van Rijsoort, J. (2003) A practical guide to participatory biodiversity assessment. In UNEP (ed) Biodiversity Assessment: a methods manual for practitioners. UNEP / WCMC.