

**Environment and Development in the Buffer Zone of Cusuco National Park,
Honduras: Experiences, Problems and Prospects**

Report for Operation Wallacea by Social Science team based at Buenos Aires

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Research and report completed July-September 2005.

Table of Contents

Contents	Page
Research Aims and Questions.....	3
Methodology.....	4
Semi-Structured Questionnaire	
Depth Interviews and Focus Groups	
Sampling	
Maps of Survey Locations	
Findings.....	10
Summary of Findings	
Livelihood: by Nick Lee	
Agriculture: by Anna Murray	
Environment: by James Bown	
Summary of Conclusions	
Intervention?.....	37
Further Research.....	39
Appendices.....	40

List of Figures

Figure	Page
Map 1: Regional Map.....	
Map 2: Buenos Aires.....	
Map 3: Guadalupe de Banaderos.....	
Map 4: La Laguna.....	

Introduction: Research Aims and Questions

This report outlines the research questions, methodologies and findings of a social science survey, conducted in July and August 2005 in the buffer zone of Cusuco National Park, Honduras.

This survey aims to understand household economics and environmental understandings and practises within the buffer zone, with the long term aim of encouraging sustainable development there.

The survey described in this report builds upon previous research, conducted by dissertation students in 2004, which conducted a household census of Buenos Aires and a number of specific studies of environmental understandings and practises within the buffer zone of the National Park.

The project began with four main questions:

- What are the sources of livelihood in this region?
- What role does agriculture, and agricultural intensification, play in this?
- How do residents perceive the buffer zone; what local environmental rules do they know and/or respect?
- How do people position themselves within wider international and developmental contexts?

These questions were asked with the broader aim of assessing the environmental consequences of development in the buffer zone, and exploring the possibility of intervention by Operation Wallacea and/or other bodies, to promote more sustainable development.

Prospects for further investigation and intervention will be pursued through a GEF (Global Environment Facility) Proposal, which will be submitted in 2005-06 for funding by the World Bank.

Scope and Contents

This report consists of summaries with illustrative results, rather than final detailed analysis, since the students will not complete their dissertations until Feb-Apr 2006; copies of dissertations will be provided by the individual students in due course. Though in some respects preliminary, therefore, this report works towards some conclusions about: the environmental consequences of development in this region; prospects for intervention to promote more sustainable development; and suggestions for further research (including dissertations and doctoral research) to inform future interventions and economic and environmental management in the region.

Methodology

To address these themes, within the constraints of time and human resources (one supervisor, one translator and three students), three research phases were planned:

Three villages in the buffer zone were included in the survey. The three villages were chosen based on their distance to the park entrance and their contact with outsiders, particularly with tourists/students/researchers entering the area with Operation Wallacea:

- Buenos Aires: deeply affected by Operation Wallacea's activity
- Guadalupe de Banaderos): less closely affected by Operation Wallacea
- La Laguna: outside the range of Operation Wallacea and other tourism

The positions of three villages are shown on Map 1; the layouts of three villages are shown on Map 2, 3, 4. The detailed village maps show households by number; these numbers are used to identify interviewees throughout this report.

Semi-Structured Interviews

To address the broad themes of the project, and gain a basis for more detailed qualitative and quantitative investigations (in the 2005 and subsequent research seasons), semi-structured interviews were conducted with a sample of residents of the park buffer zone. The questionnaire, on which these interviews were based (Appendix A), was piloted and revised before its application in the field.

Fifteen interviews were conducted in each of the three villages. Sampling within the three villages was designed, in keeping with the aims of the project, to represent households of different wealth/livelihood levels and degrees of access to land. Given the small numbers of households from which respondents were selected (less than 90 households in Buenos Aires, and less than 30 in each of the other villages), there were practical constraints on sampling. In the smaller villages, we simply interviewed all households in which a respondent was prepared to speak to us; in Buenos Aires we used the 2004 census to select households from a range of wealth rankings/status, and interviewed those who were prepared to talk to us. This was as scientific as it was possible to be under the circumstances.

Given the wide range of questions in this survey, it was appropriate to target a wide range of respondents, *within* the household level. It would not be appropriate, for instance, to always (or never) speak to male head of households. When men were present, however, they generally spoke for their families, who generally gathered to watch. To avoid this bias towards a limited range of respondents, interviews were conducted at different times of the day and week, including times when men would be likely to be out at work in the fields or elsewhere.

The households were identified according to numbers, corresponding to numbers shown on a map of Buenos Aires produced in 2004, and maps of the other villages to be produced this year.

Depth Interviews: Professionals

Depth interviews with relevant professionals in the locality and with organisations based externally, which manage and govern the environment and society of the

locality, were conducted to investigate the attitudes and practises of key figures. These included representatives of:

- Water authority
- Forestry authority
- Local education
- Local health care
- Community leaders
- Agricultural collectives
- Agricultural professionals

Depth Interviews and Focus Groups: Members of the Community

Depth interviews with selected residents of the buffer zone were included follow up and investigate in more detail the responses generated in the first stage of research. This expanded upon the themes raised in each of the four main sections of the semi-structured interviews. Selections of interviewees were made on the basis of relevance, e.g. when surveying agricultural intensification, the sample was stratified between: farmers who had not adopted intensification strategies, and those who had. The number of interviews in each case was designed to maximise the quantity of information gathered, subject to constraints of time available to the student and translator. Whereas semi-structured interviews were conducted by all students and produced common information, shared by all, the depth interviews and focus groups were conducted on an individual basis, each by one (in some cases two) students working with the translator and respondent, and this enabled more detailed attention to specific themes.

Map 1: Regional Map
Source:

Map 2: Buenos Aires.....
Source: Map Drafted by Buenos Aires community, focus group involving local residents, facilitated by Operation Wallacea dissertation students, 2004

Map 3: Guadalupe de Banaderos

Source: Map Drafted by James Bown and Nick Lee, 2005

Map 4: La Laguna

Source: Map Drafted by James Bown and Nick Lee, 2005

Findings

The following sections consist of detailed reports on livelihood, agriculture and environment, completed by the three social science students. They are preceded by a brief summary of findings, on this page, and followed by a summary of conclusions.

Livelihood

- The typical household has access to a few manzanas (approximately, acres) of land, from which they meet some of their needs. To supplement this income, men tend to work locally in fields, as casual workers or as guides, and some work in Cofradia, San Pedro or perhaps the United States for a few years.
- Many people would like to reduce their dependency on the land, finding better paid work and more secure income with employers outside the area, and/or through tourism: working as a guide, vigilante, driver or cook; taking in washing; hosting visitors.
- The survey asked detailed questions about peoples' livelihood, its distribution throughout the year, and between members of the villages. It investigated peoples' perceptions of their livelihoods, also asking about their aspirations and intentions, and their strategies for change, setting all this in the context of wider questions about how livelihood change might affect the community and environment.

Agriculture

- Typical households use the land they own or (less commonly) rent for growing coffee for sale, and vegetables such as maize and beans for their own consumption.
- Coffee production is largely through the traditional shade method, which is generally 'environmentally friendly'. Some farmers do grow 'forced' coffee, however, using fertilisers and pesticides.
- Chemicals are also widely used for commercial tomato production, mainly by a smaller number of larger farmers.
- The survey on agricultural intensification paid particular attention to the growing use of chemicals, and considered how this might be reduced; detailed findings and conclusions follow.

Environment

- Residents of the buffer zone rarely visit the core zone of the park for their own recreational purposes. Their relationship with the environment is more practical, their environmental knowledge learned and practiced through activities such as hunting (older guides learned the forest this way as children) and work as guides or vigilantes.
- Most respondents spoke positively about the park and its rules, which they claimed to respect and obey, but about which they lacked detailed knowledge.
- The survey on environmental knowledge paid particular attention to the levels and sources of environmental knowledge, and to the role of Operation Wallacea in changing this.

Wider context

- Additional questions were added to explore peoples' attitudes towards the wider world, with particular reference to the political and economic forces affecting their livelihoods. This was important for understanding more about their attitudes towards outside organisations such as Operation Wallacea, with specific reference to how such organisations might already affect them, and how they might affect them for the better, for instance in development projects.
- Most generally, it was found that people in this area knew little about the wider world, and did not show much interest, and had very low expectations.
- This section is not reported in detail in the following sections, which concentrate on livelihood, agriculture and environmental knowledge, though a fuller summary is included in the Summary of Conclusions, which follows.

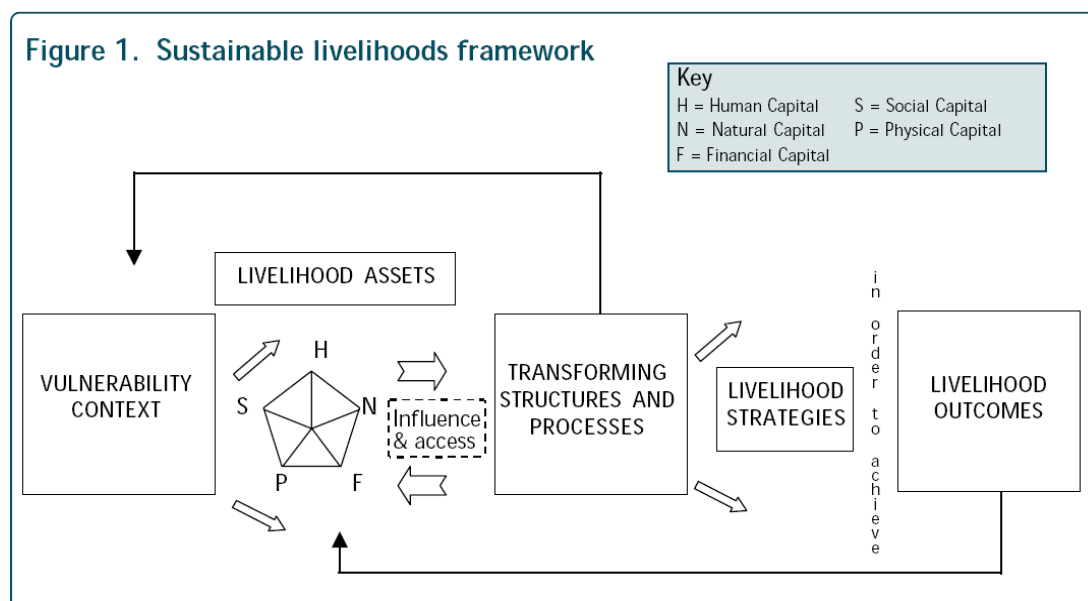
The following sections consist of preliminary reports, submitted by the three social science students to Operation Wallacea, describing research methodology and conclusions in detail.

Sustainable livelihoods for buffer zone communities of the Cusuco National Park

By Nick Lee

Rationale: “A livelihood comprises the capabilities, assets and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining in the natural resource base.” (DFID, 2001)

The sustainable livelihoods framework is a tool to improve our understanding of livelihoods. The framework presents the main factors that effect peoples livelihoods and the relationships between them.



Source: Department For International Development (2001) *The Sustainable Livelihoods Guidance Sheets*. [Accessed on 15/5/2005] at www.dfid.gov.uk/

In terms of the in field research my study will be concentrating on the vulnerability context, livelihood assets and the transforming structures and processes.

Research Question: “How sustainable are the livelihoods of the buffer zone communities in the Cusuco National Park?”

Aims:

VULNERABILITY CONTEXT:

The vulnerability context frames the external environment in which people exist. Livelihoods are fundamentally affected by critical trends, shocks and seasonality over which people have little control. Each of these factors have direct impact on peoples assert status and their capabilities of achieving beneficial livelihood outcomes. Therefore the aim is to; *identify those trends, shocks and aspects of seasonality that*

are of particular importance to these communities. Effort can then be concentrated on understanding these factors and how impacts can be minimized.

LIVELIHOOD ASSETS:

The approach is founded on the belief that people require a range of assets to achieve livelihood outcomes. Therefore no single asset on its own is sufficient to yield the many and varied livelihood outcomes that people seek. The assets can be viewed in a pentagon illustrating their important interrelationships. (See Figure 1) The aim is to; *gain an understanding of people's strengths in each of these assets and how they endeavour to convert these into positive livelihood outcomes:*

- **Human Capital:** Assess the skills, knowledge, ability to labour and good health which are all required to make use of any of the other assets.
- **Social Capital:** Assess the social resources upon which people draw in pursuit of their livelihood objectives, represented by the sharing of goods services and information within communities.
- **Natural Capital:** Assess the natural resource stocks from which resource flows and services useful for livelihoods are derived, which is particularly important where the majority of livelihood is from resource based activities.
- **Physical Capital:** Assess the basic infrastructure and producer goods needed to support livelihoods. Lack of particular infrastructure or producer goods is a key dimension of poverty.
- **Financial Capital:** Assess the saving holding and use of financial capital. Financial capital can be used for the direct achievement of livelihood outcomes and also be converted into other types of capital.

Method:

- I decided that I wanted to complete research in three villages in the buffer zone; talking to locals in Buenos Aires and cross referencing with previous study I decided that there were 4 possibilities: Buenos Aires, Guadalupe, La Junta and La Laguna. (all bar La Laguna in the buffer zone)
- I took guides to each of these settlements and drew annotated sketch maps of the settlements to familiarise ourselves with the surroundings and locate services and households. This was also an opportunity to make our presence known and chat informally about the reasons for coming and what I hoped to achieve. La Junta was the hardest settlement to map due to its dispersed layout and the atmosphere here was not as welcoming so I decided to sample the other settlements on this basis.
- A sample size of 15 **preliminary interviews** in 3 settlements was decided upon on the basis of time limitations, size of settlement and to allow time for potential in depth follow ups. The sample size also allows for quantitative methods to be used with a total of 45 preliminary interviews.
- With a lack of census data in 2 out of 3 settlements a quantitative sampling technique was hard to justify. Therefore the snowball technique was adopted whereby the sample is selected in each settlement based upon the social networks active in that community. Guides were selected that knew each of the villages well

allowing for the snowball technique to begin. Under the circumstances of limited availability of households to interview and lack of input from each interviewee in terms of suggesting another interviewee, the role of the guides in selecting houses was increased.

- 15 background questions were developed to form census data for quantitative analysis and to select sampling for the in depth follow ups.
- Using the aims developed from the sustainable livelihoods framework I developed 10 questions; these questions were then translated, reviewed and piloted until they were considered to achieve the aims and suitable for the locality.
- At the end of each interview I asked if I could come back and perform a **follow up in depth interview**.
- The background data was tabulated into a census format and used to select a sampling method for the in depth interviews. The area of land owned was decided upon as a variable that would be used for sampling the in depth interviews. This is not the indicator that represents wealth on its own however due to the time restrictions a simple indicator had to be chosen. This indicator of wealth was justified by informal discussions with a number of members of the Buenos Aires community who all identified tenure as a significant indicator of wealth.
- Categories of tenure were drawn to represent the broad spectrum of households. Those who own no land, those who own up to 5 manzanas and those who owned over 5 manzanas. Reference to the background data justifies this as a suitable sampling technique.
- The time frame of the research limited the sample to 4 interviews in each category. An even spread was also achieved between the 3 settlements ensuring that spatial comparisons can be made.
- Analysis of the background data and cross referencing with the original aims and theory allowed for the aims to be reconsidered. The information achieved in the background interviews meant that a deep insight into all of the forms of capital and vulnerability was achieved. Therefore identifying areas that needed to be followed up with a more unstructured framework. Furthermore, any gaps in the research were identified allowing for concentration in the in depth interviews.
- The in depth interview framework was based around the themes that were identified in the background research. Themes and questions to encourage open ended discussion of these themes were formed and used as the basic structure for the follow up in depth interviews.

Results and Analysis:

The results for the background of the study are best represented through separation into each of the original categories.

- **VULNERABILITY:**

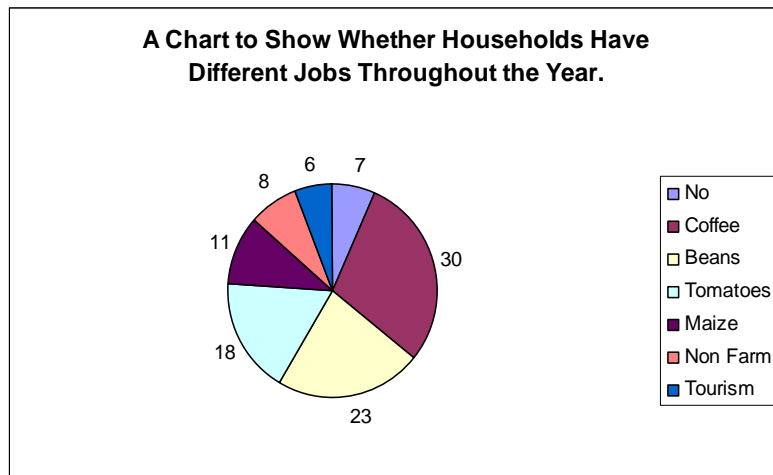


Figure 1

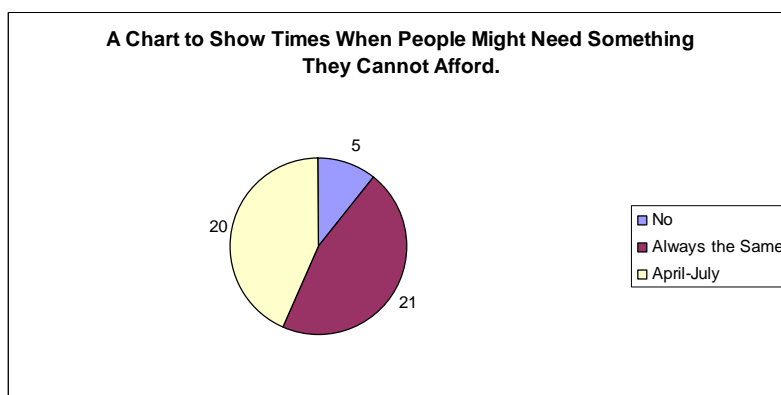


Figure 2

- Seasonal vulnerability due to the reliance on coffee season for income shown clearly by figure 1 and 2.
- Price fluctuations in the international coffee markets increasing this vulnerability.
- Access to markets limited by necessity to use middlemen.
- Lack of access to markets because the scale of poorer farmers growth means it is not economical to pay for the transport to take their own products to market.
- Therefore a lack of control over the prices which farmers in particular small scale farmers receive for their products.
- Gender issues of the risk for women at the markets.

- **HUMAN CAPITAL:**

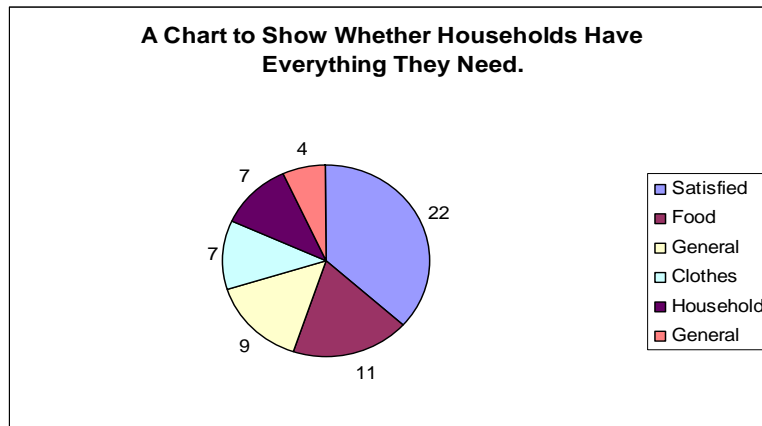


Figure 3

- There is a high level of satisfaction throughout where 22 people were satisfied that they had all they needed.
- Lack of food as a seasonal trend is an issue of significant importance.
- Importance of education, access to education in terms of cost of education and cost of labour.
- The limit to the growth a more diverse range of products for personal use is limited not only by finance but by access to land to cultivate.

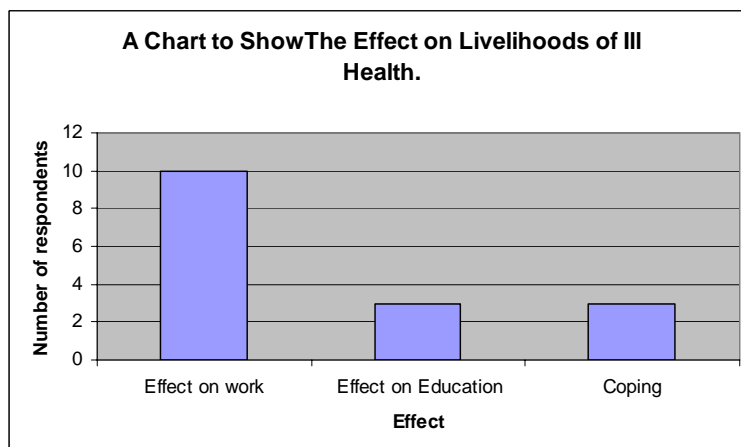


Figure 4

- The health of all households in general is good despite the limited access to healthcare. 32 out of the sample of 45 have not had health problems in the last two years that have stopped them from working. However in general it is felt that the medical services provided are limited by cost of medicine and access if treatment for anything more than a minor ailment.
- Awareness of medicine sourced from plants has been shown in 5 of the follow up interviews.

- **SOCIAL CAPITAL:**

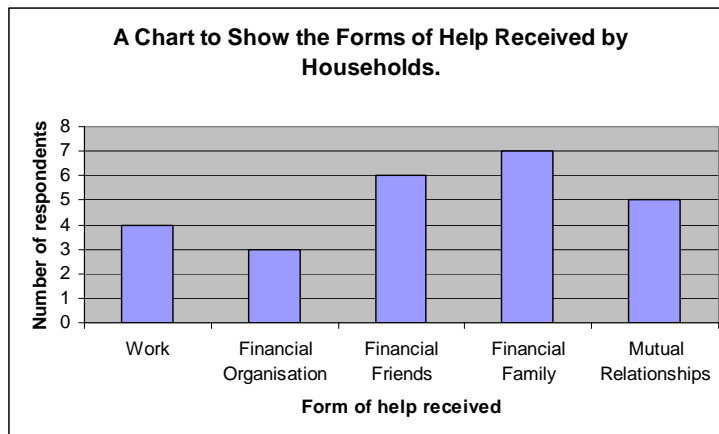


Figure 5

- Wealthier households have access to financial services.
- Sharing, Trust and Reciprocity are very important especially among the poorer households who do not have access to these services as shown by figure 5.
- 24 out of the sample have received help from a friend or neighbour to improve their livelihood.
- The role and importance of the existence of this trust in the formation of a cooperative has been emphasised in the follow up interviews.
- The sharing of information has particular emphasis in the hand down and lateral knowledge of farming methods within all communities.
- The role of the Catholic Church in all communities as a social facility has been emphasised in terms of help in times of need.

- **NATURAL CAPITAL:**

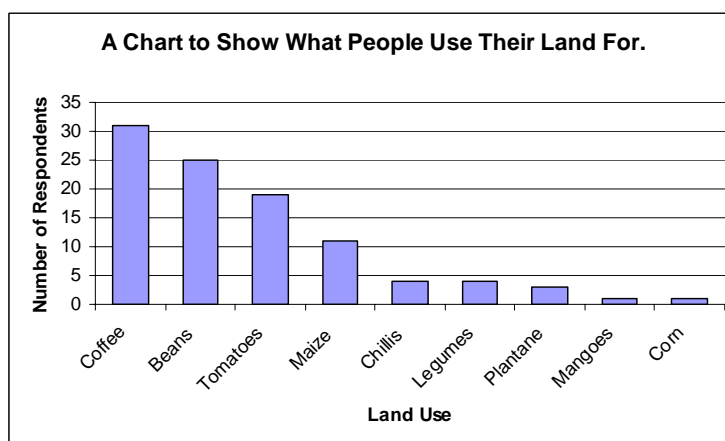


Figure 6

- There is evidence of great respect for the environment, and sustainability in the way that natural resources especially firewood are being used.
- Firewood is largely gathered from households own land and if they have no land then the wood is gathered from land belonging to other members of the community at no charge.

- This suggests that the sustainability of the firewood in terms of household use is sustainable; particularly as a result of the organisational information households have received about growing good firewood trees for shade.
- The land owned by the poor is the limit to their diversification into other resource based activities. Whereby the poor are generally limited to growing a less diverse range of products.

- **PHYSICAL CAPITAL:**

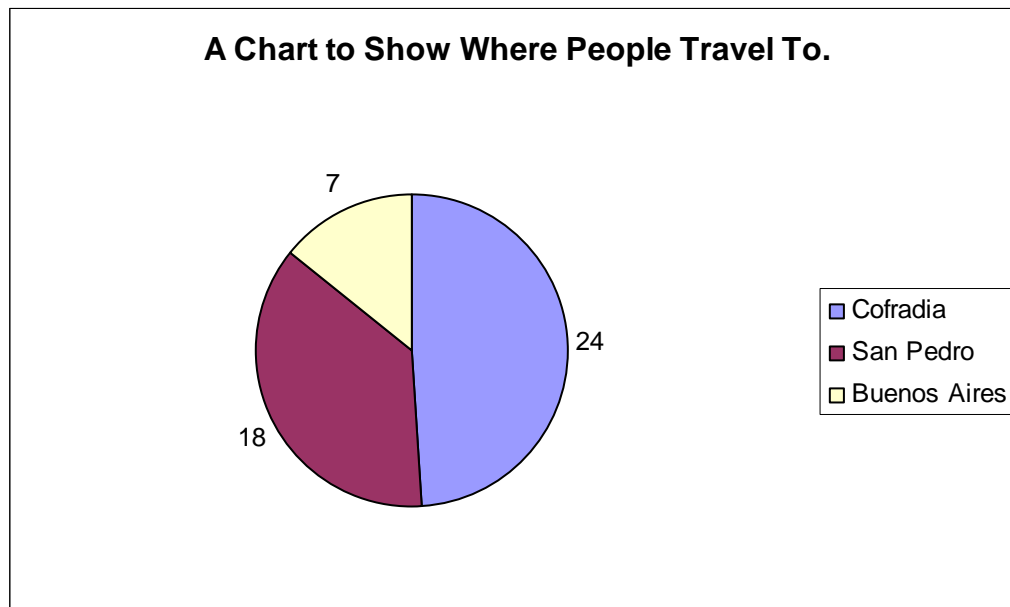


Figure 7

- Primary research indicated that the majority of people travel to Cofradia and San Pedro Sula. The households with less land tend to go less frequently for essential reasons, either medical or to buy food and clothes.
- Those households with more land tend to go more often because they have better access to the transport and they have family to visit, work to do or crops to sell.
- Improved roads would mean that people would travel more, however the access to transport will be a major issue in the future even if the roads are improved.
- If affordable transport was accessible then access to the markets for the smaller scale farmers will be greatly improved.
- It has been made clear that there is a mutual respect for the environment in particular with relation to the land people cultivate. Therefore there appears to be no lack in information in this respect.
- The information that is lacking seems to be on the awareness of the opportunities of selling fair trade products. This is particularly evident among the smaller scale cultivators. If a fair trade or cooperative was to be successful all members of the community must be aware of the opportunities.

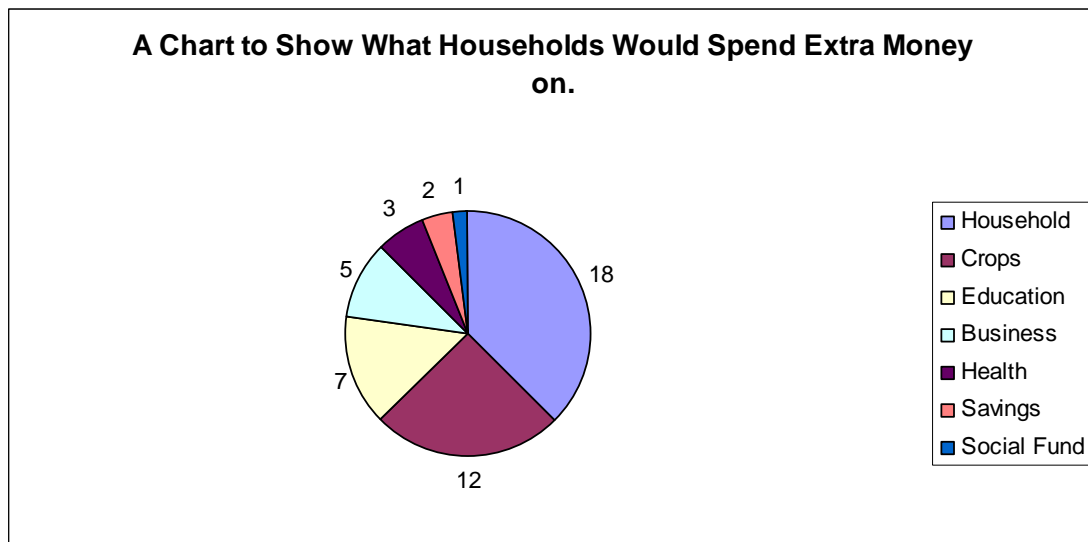


Figure 8

- People value their households very highly as assets.
- If people were to invest there is a large portion of the sample that would improve their houses by building cement floors, walls and tin roves.
- This will also affect the sustainability of the household and indirectly affect the sustainability of the natural resources as much natural resource sourced repair work has to be done on the mud houses.
- The household is also seen as an investment of capital and form of saving.
- The construction process is something that can be sourced locally through the networks of trust identified earlier.
- **FINANCIAL CAPITAL:**

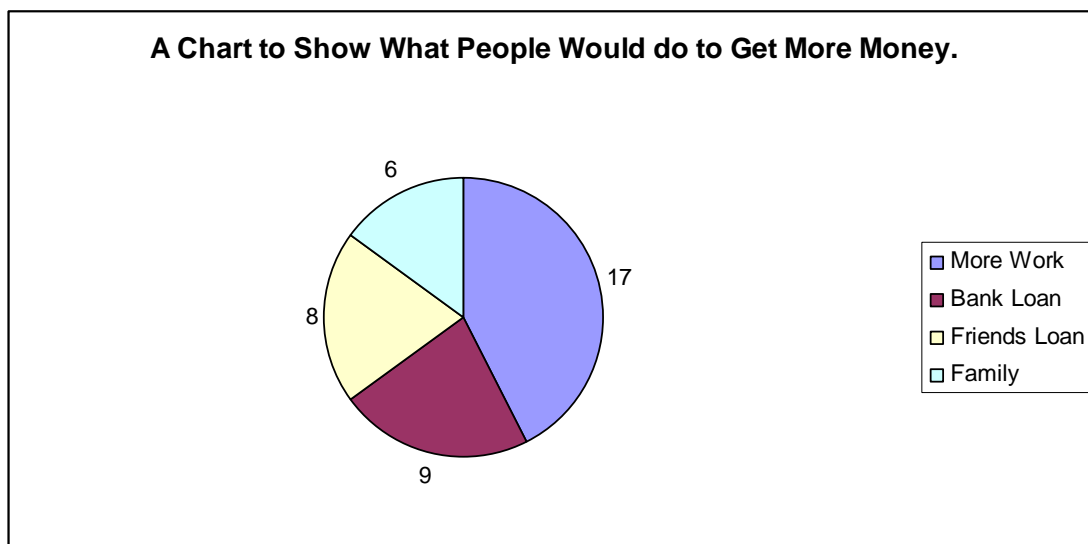


Figure 9

- More financial capital would be spent in general on improving the house (Walls, floors, roof) and invested in better crops and land.
- People also value the investment in a longer education for their children.
- Limiting this however is not only the cost of an education at the college which is relatively low compared to San Pedro Sula; but the cost of the labour that is lost through children not being able to work the land if they are at college.

- 17 of the households would cope in periods when money is short by getting more work. Investigating this in the in depth showed that the most popular method of finding more work is to work for a lower wage for other larger scale farmers.
- Access to bank loans is only available to the wealthier groups and 14 of the sample would get a loan from a friend or family as shown in figure 9.

CONCLUSION:

- Capabilities, assets and activities for a means of living are being achieved.
- **SUSTAINABLE?** In terms of recovering from seasonality and stresses the sustainability of the communities is weakened not by the undermining of the natural resource base but by the access to the assets that allow people to enhance their livelihood capabilities.
- These include: - Access to fair and stable markets.
- Access to land and a diversity of products to grow.
- Access to these assets would give these communities opportunity to enhance other areas of capital that are equally as important to achieving sustainable livelihoods.
- These include: - Household assets.
- Education.

FURTHER STUDY? *Census data for all the communities in the buffer zone has been one of the main limitations to the social scientists investigation. Something that is essential for any implementation of policy in an area.*

Appendix 1

List of Follow up interviews:

Interviewee	Village	Household	Date
Santiago Alvarenga	Buenos Aires	49	31/7
Alfono Cruz	Buenos Aires	50	1/8
Antonio Alberenga	Buenos Aires	52	31/7
Female Head	Guadalupe	Opp. 30	1/7
Female Head	La Laguna	1	7/8
Male Head	La Laguna	26	7/8
Antonio	Buenos Aires	32	9/8
Ruben	Guadalupe	10	9/8
Female Head	Guadalupe	24	9/8
Miguel Mejia	Buenos Aires	16	9/8
Female Head	La Laguna	18	14/8
Female Head	La Laguna	25	14/8

Agriculture within the villages surrounding Cusuco National Park

By Anna Murray

Rationale

Agriculture is one of the most prominent industries within Honduras, accounting for nearly 35% of the country's GDP, with approximately 60% of the labour force generating the majority of its income from agriculture alone. Agriculture can therefore be seen to play an important role within the social, economic and environmental structure of the country as a whole. But the problem is 'Can agriculture continue to provide a viable income source for the population in the future or will agriculture in Honduras face an unwelcome decline as it has over the past century throughout much of the developed world?' The aim of this study is to answer this question in the context of the villages surrounding Cusuco National Park investigating the research question: 'Is agriculture the way forward for sustainable development within three villages surrounding Cusuco National Park.'

The park itself is an area of high scientific and environmental importance. But like so many habitats across the world Cusuco has come under increasing pressure from human activities such as illegal logging and hunting which subsequently threatens the forest's unique and diverse status. In an attempt to curb such activities and conserve the forest a new management programme for the park has been proposed which aims to protect the core zone of the forest whilst also ensuring the sustainable development of surrounding communities. In the past activities such as illegal hunting and logging can be seen to have formed the basis of a stable and secure income for many communities and therefore it is essential that alternative sources of income are explored if complete protection of the forest is to be achieved. The sustainable development of agriculture within these communities has been suggested as one such alternative to enhance their economic development but the potential impact of such development on the social, economic and environmental status of the surrounding communities remains uncertain. The study will explore how any future agricultural development may affect local communities and households, examining the possible advantages and disadvantages this may bring to the area with regards to environmental, economic and social sustainability. In answering the research question the study will investigate three main objectives:

1. To investigate the importance of agriculture within the three sample villages of Cusuco National Park
2. To determine how sustainable current agricultural practices within the area are for the future sustainable development of the three sample villages
3. To suggest future sustainable development pathways for the three sample villages

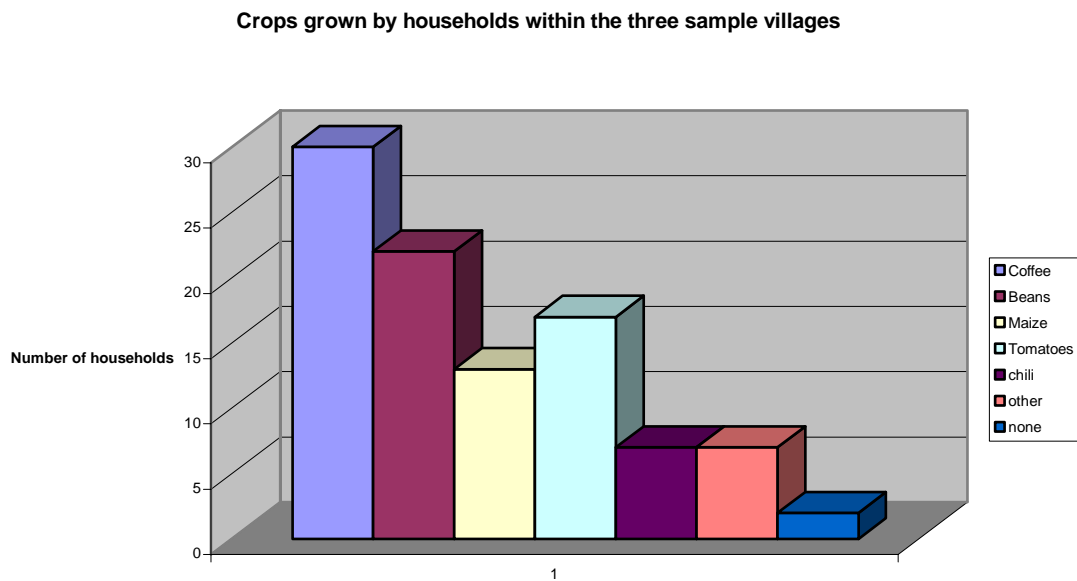
NB: See previous chapters for research methodology

Results

The research has shown that, like Honduras as a whole, agriculture plays an important role within the lives of the buffer zone communities of Cusuco National

Park, with 93% of the households interviewed in each of the three sample villages engaged in some form of agricultural production and over 75% stating agriculture as their main source of livelihood. Like throughout Honduras private household plots consist of small family run plantations, with the majority of households owning between one and three manzanas. The investigation has also shown that traditional methods of cultivation still remain prominent within the three sample villages despite the rapidly growing technical advancement of agricultural practices across the globe. The majority of the crops grown within this area are the traditional products of maize, beans and coffee with a small expansion into tomato and chilli plantations. (See graph one for details)

Graph one



These products are farmed in a very traditional way with all work being completed by hand without the use of machinery. Only 1% of the households interviewed farmed over 3 manzanas of land with many of these describing themselves as commercial farmers, employing locals to work on their farm. As a result of the size of land they own these 'commercial farmers' are able to grow a much larger range of crops than the majority of the population.

The threat of high maintenance plantations.

Shade coffee is a traditional form of coffee production prominent throughout Latin and Central America. Coffee bushes are cultivated under a forest over storey therefore protecting the coffee plants from the sun and the rain. This method of production is highly sustainable as the tree cover helps to maintain soil quality, reducing the need for weeding and aiding in pest control, whilst also providing a rich habitat for a variety of animal species. The research has shown that over 85% of households interviewed grow shade coffee but the study has also revealed that prices received for this crop are highly variable and prone to extreme rises and falls from

year to year. The main reasons for this are instabilities within the world market alongside climatic conditions that affect soil fertility levels, and the level of pests. These in turn greatly affect the crop quantity and quality and therefore the price received.

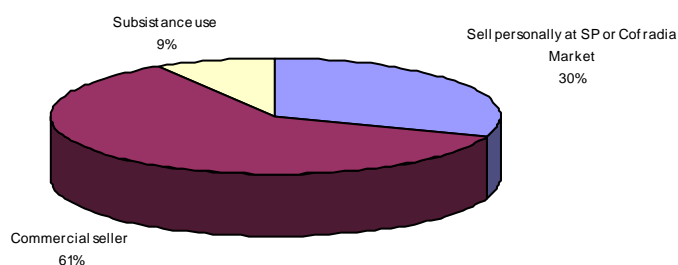
In recent years coffee prices across the world have reached all time lows, as the market has been open to free market economies, having a dramatic impact on the lives of those households within the buffer zone villages. Many have been forced to cut their ties with the coffee market resulting in the transformation of the social, economic and environmental landscape as coffee plantations are increasingly replaced by the growing of tomatoes and chillies. These crops are generally regarded as high maintenance, requiring increased use of pesticides and fertilizers to achieve high quality saleable crops. Those who have moved away from coffee production completely therefore tend to be those with a greater disposable income and over 3 manzanas of land. The poor are often unable to afford the high prices demanded for chemical use and are therefore forced to rely upon the unstable world coffee market.

A further transformation within the coffee market has also been the transformation from shade grown coffee to that of sun coffee. Loureiro and Lotade (2004) believe that the economic need of Central America to maximise coffee production in the 1970's has made coffee producers switch to agricultural techniques that degrade the environment, a switch involving a change from shade coffee to that of open or sun coffee. Sun coffee results in a greater quantity of coffee produced than shade coffee but despite this the quality of individual beans are greatly compromised. The restructuring of households social, economic and environmental situation is also common as a result of this transformation. Social networks are put under strain, as sun coffee requires a higher level of man-hours resulting in stresses, which may result in stresses within the household. Greater economic input from the farmer is also required as sun coffee plantations require increased chemical purchases and the overall quality of the environment and its productivity may decline due to increased chemical use and tree cover removal which in turn leads to a decline in soil fertility and an increase in erosion vulnerability. Despite the fact that the majority of those interviewed (95%) grow shade coffee, transformation to open coffee plantations poses a real threat for the future if coffee prices continue to decline as farmers may be forced into this transformation in an attempt to secure their livelihoods.

All those interviewed expressed the wish to grow a greater range and better quality crop in an attempt to improve their livelihood, but they are prevented from expanding their land and enhancing their products due to lack of land and financial capital to invest in such changes. Without the guarantee of land behind them many are unable to borrow money from banks and other organisations therefore further limiting their chances of further development and trapping them in a vicious cycle of poverty

Graph two

Selling of Produce in all 3 sample villages



The research has shown that in the past coffee cooperatives have existed in many of these communities but the majority have since folded as a result of lack of investment, administration and experience in running such organisations produce. The majority of the households sampled therefore stated they worked alone to sell and grow their products and this alongside lack of direct access to markets as a result of the high costs of transportation has meant many households are forced to receive relatively low prices for their produce. In all three-sample villages larger commercial farmers act as middlemen within the community, buying locals products that they then sell on for a profit in the markets of San Pedro or Cofradia. It is often cheaper for small farmers to sell to those middlemen, who own vehicles, than to hire transport to sell their products personally at these markets. (See graph 2 for details). All those interviewed believe that cooperatives are a valuable way for local farmers to achieve higher prices for their produce and to compete on a national and global market. Despite this a major concern is the lack of outside help within the area

Potential for the future

The research has highlighted the visible lack of assistance given to farmers by outside organisations and in particular the Honduran government. Only 1% of those households interviewed within the three sample villages received any form of help from outside organisations or government sources. Those who did receive help corresponded to those who owned the most land. The poor were left to their own means, with many feeling 'the government often promises a lot but always fails to deliver.' If cooperatives are to be used in the future as a method of enhancing the prices received by small farmers for their products outside help is essential to assist with the technical assistance and education needed within the local communities to ensure any future cooperative projects are a success.

Fair trade pricing systems may also provide an option for the future sustainable agricultural development of the three sample villages. According to the Fair Trade Federation (2004) sales of fair trade commodities are rising at close to 40% per year in North America and the Pacific Rim.¹ Despite the relatively low prices currently received for shade coffee within the sample communities fair trade coffee may provide households with the potential to greatly enhance their income with very little effort. This fact is highlighted by Loureiro and Lotade (2005) who state ‘farmers in developing countries benefit from fair trade practices since the buyers and sellers of the products directly without the middlemen... the label also emphasises the messages of care for the environment, social justice and quality standards of products’. Research has shown that consumers in the western world are willing to pay higher premiums for organic, shade and fair trade coffee, highlighting the existence of niche markets available to differentiated products carrying ethical and environmentally preferable messages (Loureiro & Lotade, 2005).² This evidence provides a strong argument for the case of aiming to achieve certification of the locally grown coffee as fair trade and shade-grown but like the promotion of locally run cooperatives this will initially require input from external organisations if the scheme is to be run successfully.

The diversification of work opportunities both in terms of diversifying the number of crops grown by individual farmers and in the enhancement of off farm opportunities are also potential areas of future development for the sample villages. Reliance upon a small number of crops makes farmers highly susceptible to climatic and market variability and as an increase in the variety of products grown throughout the year may help to provide financial stability and security throughout the year. To achieve this access to technical assistance in growing new crop varieties, cultivation methods and loans for poorer farmers must be increased, as without this knowledge such diversification may be doomed to failure from the start.

Increased access to off-farm employment may provide an alternative to the instability of agriculture within the sample communities with the advancement of global eco-tourism providing a strong basis for a possible rise in tourists to Cusuco National Park. Presently the park receives little revenue for eco-tourism outside the Operation Wallacea season and the evidence shows that of the three sample villages only one (Buenos Aires) presently receives any benefit from their presence. If eco-tourism is to benefit all the surrounding communities a plan must be formulated which bring together all communities and households together to assess the benefits each can bring to the modern eco-tourist and how this can be completed in an inclusive and coordinated fashion. Alongside this the priority must be to improve the access routes to the park, which are currently in a poor state and to enhance the promotion of the park not only on a national but international scale which many believe lies in the hands of both the local and national government who have promised to invest more time and money into the region. Only the future will tell if such promises are carried out and indeed if eco-tourism is the way forward or if agriculture is the way forward for the sustainable development of the villages surrounding Cusuco National Park.

¹ Fair Trade Federation. (2004) ‘Report on Fair Trade Trends’, *Fair Trade Federation*, available at: http://fairtradefederation.com/2003_trends_report.pdf

² Loureiro, M and Lotade, J. (2005) ‘Do fair trade and eco-labels in coffee wake up the consumer consciousness?’, *Ecological Economics* 53:129-138

Paper parks: Environments of Hybrid Knowledge?

By James Bown

Contextualising the Research:

Geographical research on the environment remains theoretically and empirically diverse. Traditionally, western scientific attitudes and top-down management strategies have been brought in and used to analyse environmental development problems and offer solutions based on this scientific top-down environmental knowledge (SEK). However, this ‘certainty’ in SEK has come under increasing scrutiny in the post-development era (Escobar, 2001; 1995) with post-colonial and anti-development theorists arguing that this SEK has been elevated above ‘other-local’ knowledge systems, subsequently marginalizing multiple voices (Radcliffe, 1999) and undermining the Local Environmental Knowledge (LEK) of the people (Chambers, 1983).

Arguably, the management of the environment in the twenty-first century involves “far more than simply understanding the science of the environment” (Jones, 2004: 6). The “knowledge’s and values of local communities are now being acknowledged as valuable for biodiversity conservation” (Pretty & Smith, 2004; 631). There is a need to understand how these ‘distinctive’ and ‘contested’ environmental knowledge’s interact with one another in the same environment, and how they both could be integrated into future community development strategies under the term ‘hybrid knowledge’. (Hybrid Knowledge: Uses the local knowledge as the starting point in development research and then uses western science as the means to extend management practices into other areas (Forsyth, 1996; Nygren, 1999).

Cusuco National Park (CNP):

In 1987 the Honduran government set-up a number of National Parks to protect the remaining high altitude, ‘cloud’ forests. However, many of these National Parks and their associated imposed spatial zones and top-down rules only exist on paper. Essentially they are parks on paper with paper rules (Powell *et al.*, 2001). This study aimed initially to discover what SEK the buffer zone and surrounding communities in the park knew, in order to test whether the CNP was just another park on paper with paper rules. However, as research progressed a new type of knowledge was discovered and tapped into, consequently new objectives and methods were formed to investigate this LEK of the people as well.

Dissertation Question:

Present research attempts to investigate and compare the types and levels of knowledge within the buffer zone and surrounding communities of the CNP and their use in future management strategies of the park:

To what extent do the environmental and regulatory knowledge levels differ between the buffer zone and surrounding communities of Cusuco National Park?

Dissertation Objectives:

1. To investigate and compare what the buffer zone and surrounding communities currently know about the two spatial zones of the Cusuco National Park and the top-down, managerial rules which govern them.
2. To investigate and understand what the Local Environmental Knowledge (LEK) is of the buffer zone and surrounding communities?
3. To investigate how the buffer zone and surrounding communities value the Cusuco National Park and position themselves within it using this local environmental knowledge?
4. To investigate how the buffer zone and surrounding communities have acquired this 'local environmental knowledge' (LEK) and the mechanisms by which it is reproduced/passed on?

Methodology (see BK overview for baseline interviews – sample size 45)

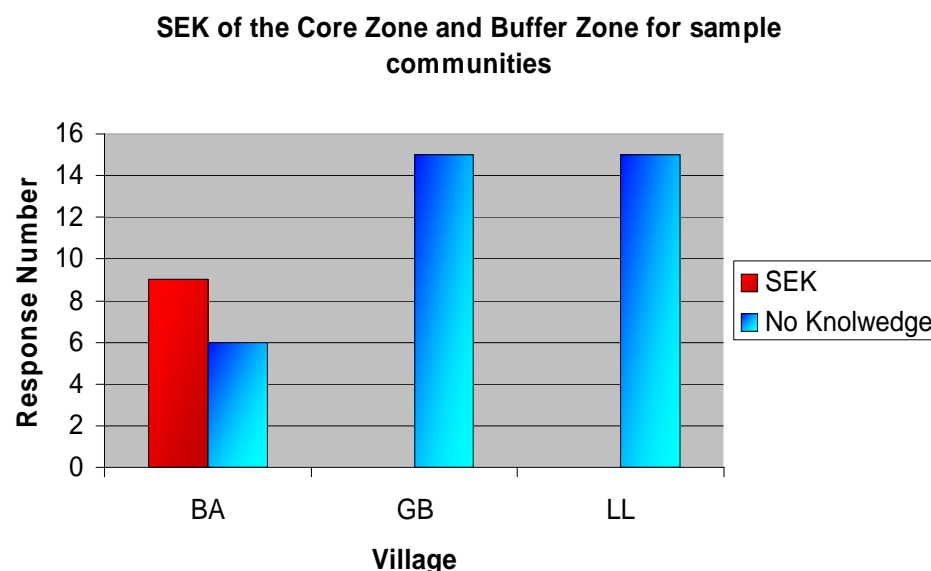
Results for Objective 1:

In order to investigate what the current level of SEK was within the sample communities, concerning the CNP, I obtained a copy of the CNP's definitions for the two zones and the rules which applied to them, all summarised in Decree 87:87, the official legal document (see appendix 1).

From the baseline interviews 3 key findings were drawn out relating to objective 1. These findings are summarised below:

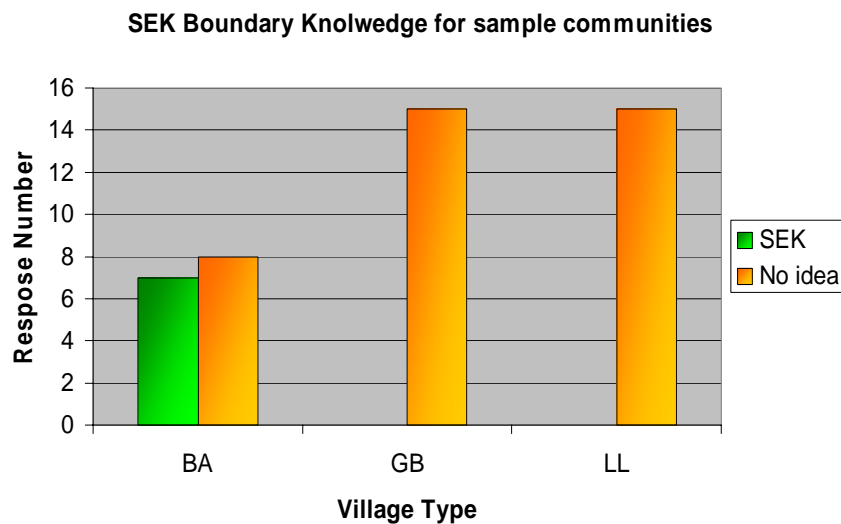
- **Core and Buffer Zone Knowledge (see Figure 1):** All communities had very little, if any, SEK understanding of the two spatial zones. However, there was a clear difference in knowledge levels between Buenos Aires (60%) and other sample communities (0%). Preliminary results suggest this form of SEK not communicated to communities' very well if at all. (N.B Information obtained triangulated with the secondary Manger and Professional Interviews).

FIGURE 1:



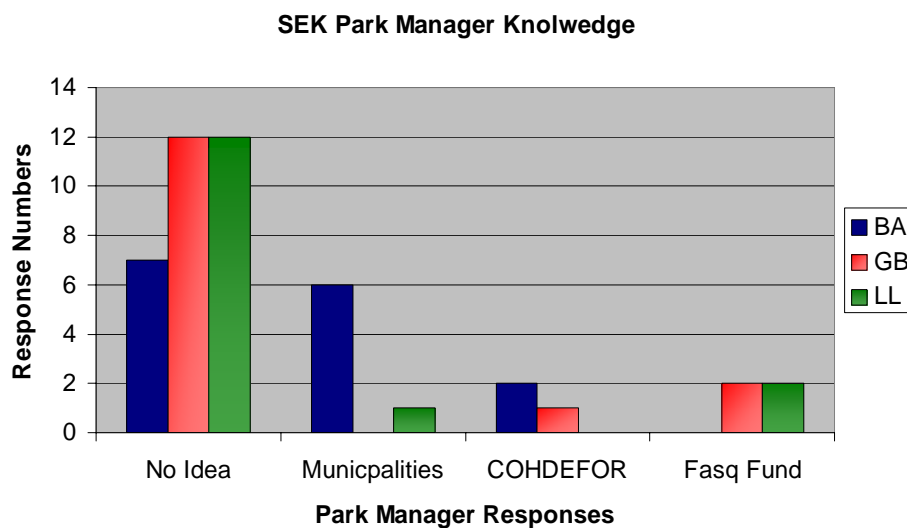
- Park Boundaries (see Figure 2):** Baseline interviews found that no knowledge existed for the buffer zone boundary in any of the sample communities. However, there was a clear difference in knowledge levels of the core zone boundary with 47% of the Buenos Aires sample knowing where it officially was, compared to no knowledge of it in the other sample communities. N.B Although BA indicated a higher knowledge of the park boundaries it is clear that none of the communities sampled have a clear significant knowledge of the park boundaries, especially the buffer zone. (Triangulated with Manger and Professional Interviews).

FIGURE 2:



- Park Managers (Figure 3):** From the baseline interviews it was clear that none of the sample communities knew clearly who the current managers of the park were, or even who the past managers had been.

FIGURE 3:



Also, it was clear that the Buenos Aires sample had more SEK about the two spatial zones of the Cusuco National Park and the top-down, managerial rules which govern them compared to the other sample communities of Guadalupe and La Laguna. Therefore, I went back and analysed all the baseline interview questions in more depth and found a group of respondents, pre-dominantly in Buenos Aires, that significantly knew more SEK about the park, its zones and the rules which govern them. I called this group ‘The Professionals’ and it included guides, DIMA workers, the eco-lodge owner and the owner of the waterfall. In-depth secondary interviews (see appendix 2) were held with this group over the coming weeks and part of the interview looked at how they acquired their SEK of the park (see text box 1 below).

Text Box 1:

Carlos: “the influence of operation wallacea has woken the community up to the fact that the park is an important natural resource”

Santiago: “BA has benefited due to its proximity to the park entrance and by our contact with foreigners from operation Wallacea that help educate us about the parks and its resources”

Leonardo: “people from BA have leant about the environment from foreigners that have come here”

Teacher: “work with operation wallacea directly and indirectly educates those involved about the environment and increases the awareness within the community as people talk about it”

Guide Focus Group: “being a guide means that you are working in the park or in the buffer zone, so you start to learn about the place you work in and its value”

The interviews indicated that their SEK had been acquired through three chief factors: their work in the park, increased contact with foreigners, mainly through Operation Wallacea and the proximity of Buenos Aires to the entrance of the core zone. These factors were then triangulated with one of the baseline questions which investigated the impacts of the CNP upon the communities, in terms of work opportunities, levels of foreign contact and knowledge of Operation Wallacea (See Figure 4, 5 & 6):

FIGURE 4

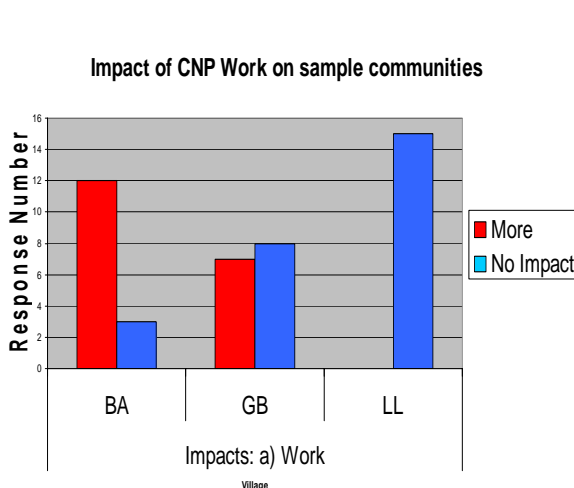


FIGURE 5

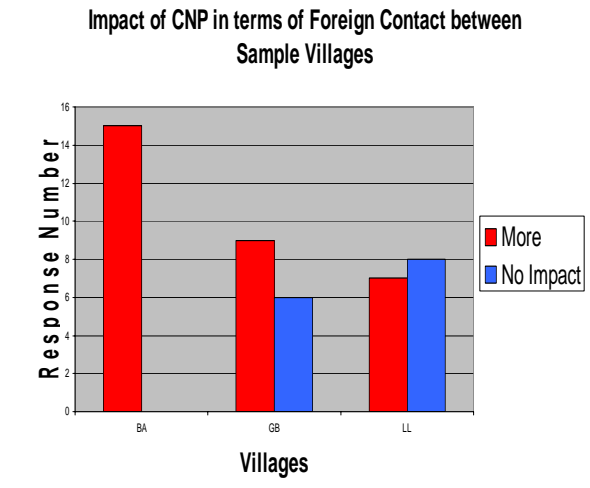
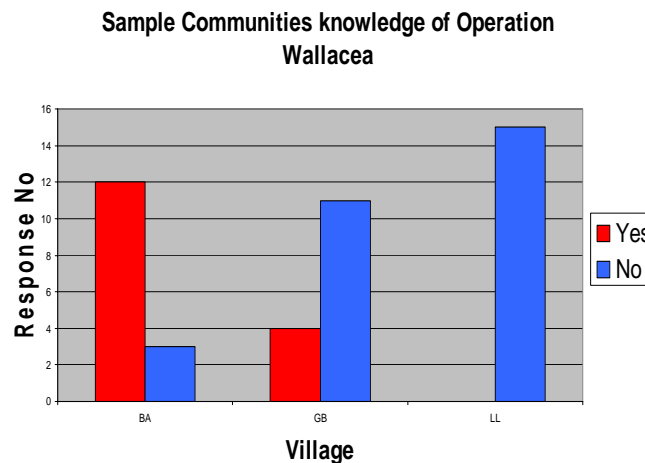


FIGURE 6



When this evidence was triangulated together it became clear that the reasons Buenos Aires had higher levels of SEK about the park were down to the proximity of the village to the core zone entrance and the impact of Operation Wallacea providing work in the park. As distance from the park entrance increased levels of work, foreign contact and knowledge of Operation Wallacea all declined significantly, correlating with lower SEK knowledge levels about the park moving away from Buenos Aires.

Conclusion for Objective 1:

- The sample communities of Guadalupe and La Laguna do not know the two spatial zones of the park or their boundaries according to formal definitions in Decree 87:87. Neither do they know who the managers of the park are.
- The sample of Buenos Aires did have some understanding of the two imposed spatial zones but only a certain group of individuals, the professionals. For this group SEK is reproduced through their work in the park, mainly with Operation Wallacea. However, the rest of the sample community had little SEK of the two spatial zones, and no SEK of their boundaries or who the managers are.
- Therefore, my preliminary conclusion is that there is no significant difference between the buffer zone and surrounding communities in terms of SEK about the two spatial zones, their boundaries or who the managers are. The formal top-down, managerial rules that apply to the two zones are only on paper. The rules do not exist for the communities because the communities do not know about the two formal spatial zones of the park, their boundaries or who the managers are. There also seems to be a lack of communication of the managerial rules and spatial zones to the people, which were followed up in the manager interviews with COHDEFOR and the Fasquell Foundation (see text book summary below).

“All the communities have a general knowledge about the park, its rules etc, but yes... some do know more compared to others. I think BA knows more but it does not mean the people obey the rules”
 “Meetings were held to educate the people when the park was first setup but since then I don’t what or how the other managers have educated the people about the rules” (COHDEFOR Interview)

New Directions and New Objectives:

From my baseline interviews and the findings from objective 1 it was clear to me that I had found out what the people in the buffer zone and surrounding communities did not know (SEK). However, I needed now to find out what they do know about the CNP, I needed to tap into their local environmental knowledge (LEK) and investigate what the park meant to them. I came up with objectives 2-4 (see Text Box 2) after I had triangulated my indirect and direct participant observations with further analysis of the baseline interviews (see Text Box 3):

Text Box 2:

2. To investigate and understand what the local environmental knowledge (LEK) is of the buffer zone and surrounding communities?
3. To investigate how the buffer zone and surrounding communities value the Cusuco National Park and position themselves within it using this local environmental knowledge?
- To investigate how the buffer zone and surrounding communities have acquired this 'local environmental knowledge' (LEK) and the mechanisms by which it is reproduced/passed on?

Text Box 3:

Objective 2:

- Deep respect and desire to protect forest from baseline interviews – “rules are good because they protect the life of the forest” (int - 25-GB) / “god sent the animals down to earth and because they are innocent we should not kill them” (int-14-GB) / “work only what you need to and leave the rest of the land” (int2 – BA) / “people still have a connection to the forest but since the park this connection has changed... now more people respect the park and want to protect it like they protect their land” (Rojare guide)

Objective 3:

- Park to the people is the mountains (the formal core zone), not both spatial zones. “No one works up there (points to mountains) from here” (Int 19; LL) / “too far to visit” (Int 26; GB).

Objective 4:

- Numerous organisations were mentioned as sources of knowledge in all communities, including: BAHNCAFE, Escuela para Todos, ENESCO, and Operation Wallacea.

New Methodologies to ‘tap’ into LEK:

1. In-Depth Interviews

Formulated three groups of themed questions (park, land & home) to investigate LEK based around objectives 2-4. Piloted questions beforehand in each of three villages to test if questions were appropriate and answering objectives 2-4. Due to time limitations, in order to get a representative cross-sample of the population in each village I stratified the sample population by one variable: wealth in terms of number of manzanas. Using baseline interviews, I categorised manzanas into 3 wealth groups and therefore, 3 in-depth interviews within each village. Wealth groups chosen so that number in each wealth group tried to have more than one potential in-depth interviewee, because due to the nature and context of this research people were often busy or out.

2. Place and Space through local eyes

In order to fully investigate objectives 2-4 and tap into the LEK of the people I wanted to understand the important environmental places and things in the people’s lives in the context of the CNP and their surrounding environment. I wanted an insight into how the people used their LEK to view their surrounding environment, how do they visual position themselves within it. Therefore, I decided to do a very small-scale study using one household in Buenos Aires. I gave this household seven disposable cameras and asked them simply to take photos (15 photos/camera) of the environmental spaces and things important to them in their daily life? (How do they value environment using LEK). I gave the cameras to this particular family because I had built a very special rapport with all of them. Also, many of the family had varied jobs, ages, genders and this variety will allow me to explore the different LEK’s within one household.

3. Transect walks:

During my time in the community I accompanied the local people within Buenos Aires to their work – this could have been with a field worker on the coffee plantations or to their farm, walking with guides who were working in the core zone of the park or helping a housewife wash the cloths and look after \the children etc. I tried to do this as often as possible in my final two weeks and ensured I did transect walks with different genders and ages and would informal chat to them about their work and knowledge about it, keeping my objectives in mind.

4. Field Diary

This was kept for the duration of my stay recording indirect observations and informal conversations, images, experiences etc to help later on when im triangulating and cross-checking my results.

Preliminary Results and Conclusions for Objectives 2-4:

The in-depth interviews have indicated that within the buffer zone communities and surrounding communities sampled there is a deep respect and knowledge about the CNP and the wider environment.

- The word environment means in a local sense, the trees, the land and the water. “It’s the air we breathe and the water we drink”.
- Everybody values the environment and thinks it has an important role within their daily rhythms of life. “The environment enables life to live...if we contaminate or harm it, we will not survive” or “I work in the heart of the land, the environment provides me with the soil for my crops, the water to live and the trees to shade my coffee and body in the heat”.
- When the people describe their experience in the park their language is holistic and spiritual, emphasising this deep respect e.g. “it is a beautiful and peaceful place, where I can learn about nature”, “it is a beautiful attractive place that protects the colourful flowers and rare animals and birds”.
- The park to the people is a distinctively separate place compared to their land or home. This is either in terms of a mental distance, different environments or how the people behave differently the park. “It’s a different place, there are animals and plants there, whilst here there are none”, “It’s in the centre of the mountains, separate from the communities that live in its shadow”. “The land is good for cultivating crops, whilst the park’s soil is good for growing trees and protecting its animals and plants”.
- People describe the park’s location in terms of mental distance, “far away in the mountains” or “up there”, however, even for the large majority of people that have never visited the park mentally associate and know that it is above Buenos Aires.
- In terms of the park boundaries and how the people know when they are in it e.g. “you just know when you are in the park, it has its own distinctive environment, the air is cooler and there are more trees, animals, there are the sounds of nature and life”.
- People talk about the park as a place where “you must always care and respect the environment wherever you go” and “cannot do anything that will destroy the environment”. People clearly have a local environmental knowledge about what is good and bad practice for the environment both in terms of the park and their land. “I use the land for my work, whilst I cannot cultivate the land in the park or cut wood for the house”. This exemplified by the techniques the communities use to conserve and use wisely their limited firewood resource.
- Local Environmental Knowledge (LEK) about the park and the surrounding environment is produced and reproduced by a variety of networks. Knowledge about the land and park and the importance of the environment in life has been passed down through family generations and childhood experiences of working on the land and learning about what resources are important to protect. Fundamentally, the land is the livelihood of the people in these communities, emphasising why the people have a great and deep respect for the wider environment. In Buenos Aires people also value the park in terms of it as a potential wealth of resources for tourism.

General Conclusion: Environments of Hybrid Knowledge?

Preliminary research has indicated that the buffer zone and surrounding communities have little if any knowledge about the formal top-down managerial rules of the CNP set out in Decree 87:87. However, the proximity of Buenos Aires combined with the influence of Operation Wallacea in terms of providing work opportunities in the park, has meant that some SEK about the park is being reproduced within a small

‘professional group of people’. However, this study has also explored the people’s local environmental knowledge (LEK). The study has found that despite little SEK, the local people have a deep respect and depth of knowledge about the park and the surrounding environment in which they live. The park, although on paper, is an environment of hybrid knowledge where LEK interacts with SEK. Future management plans in terms of developing the communities must ensure and understand this LEK and listen to what the local people want (more work and education).

Appendix 1: Summary of Decree 87:87 (waiting to be translated at time of writing)

Appendix 2: List of Professional Interviews

Interviewee	Village	Household	Date
Santiago (Toucan)	Buenos Aires		
Leonardo (Dima)	Buenos Aires		
Carlos (Eco-lodge)	Buenos Aires		
Marcial (Opwall)	Base Camp		
Focus Group Guides	Buenos Aires		
Miguel Guide	Buenos Aires		

Appendix 3: List of In-Depth Interviews

Interviewee from baseline	Village	Household	Date
Int18 – 2manz	La Laguna	1	14/08/2005
Int 43 – 3-9 manz	La Laguna	17	14/08/2005
Int 21 – plus 10m	La Laguna	14	14/08/2005
Int 14 – 2manz	Guadalupe	10	16/08/2005
Int 23 – 3-9 manz	Guadalupe	7	16/08/2005
Int 30 – plus 10 m	Guadalupe	19	16/08/2005
Int 34 – 2manz	Buenos Aires	32	08/08/2005
Int 9 – 3 -9 manz	Buenos Aires	16	08/08/2005
Int 10 - plus 10	Buenos Aires	52	08/08/2005

Overall Conclusions

Livelihood

- The ability to maintain and enhance livelihood capabilities is limited not by the undermining of the natural resource base but by access to fair and stable markets and access to land and diversity of crops to grow.
- Achievement of these assets would give households the ability to enhance assets that are valued very highly by these households; improving the structure of the household and increasing levels and relative value of education.

Agriculture

- Poor access to land has resulted in a focus on the growing of a few main crops by small farmers. The prices gained for these crops are highly variable and this alongside heavy reliance upon middlemen to sell their crops means small farmers have little opportunity to expand their current livelihood sources.

Environment

- Preliminary research has indicated that the buffer zone and surrounding communities have little if any knowledge about the formal top-down managerial rules of the CNP set out in Decree 87:87.
- However, the proximity of Buenos Aires combined with the influence of Operation Wallacea in terms of providing work opportunities in the park, has meant that some SEK about the park is being reproduced within a small 'professional group of people'.
- The study has found that despite little SEK, the local people have a deep respect and depth of knowledge about the park and the surrounding environment in which they live.

Wider context

- People in this area knew little about the wider world, and did not show much interest, and had very low expectations. For instance, most had heard of September 11 but knew little of its repercussions, and few were aware of the cancellation of most of Honduras's national debt, which resulted from the G8 Summit on July 7, freeing up the 15% of government spending that was until recently devoted to servicing the debt.
- There is one main exception to this isolationist world view: despite low pay (by western standards), foreign employers in San Pedro and Cofradia are generally well regarded. Second to employment in the USA itself, jobs with American manufacturing companies are particularly coveted; Korean employers were regarded with less enthusiasm.
- People in this area have very low expectations of their national government or of external and international organisations such as charities and development organisations. They know little or nothing of previous interventions, and do not expect any help in the future. Despite very low standards of health care, very little in the way of public services, and widespread poverty, few people can even imagine what outside organisations could or should do to benefit them and their community. However, this does not mean that outside organisations should not continue to work to improve conditions in community and environment; quite the contrary.

General

- People have a deep knowledge and long term respect for the land they use and/or own, and the surrounding natural environment. There is no environmental crisis in this area; rather, a positive relationship with the land and nature. However, there are threats on the horizon, in terms of increased pressure on the land – people are increasingly relying on limited portions of land, in the face of population increases (high natural increase rates) and vulnerability to unstable agricultural market prices. To maintain sustainable development and protect against looming environmental threats, we propose a number of interventions for action, which are set out below.

Intervention?

Interventions by western governments and organisations in developing countries have a problematic history of advancing western interests/values and/or “knowing what’s best for them” without fully consulting or involving local people. Recently, however, these bodies, overseen by organisations such as the World Bank and United Nations, have developed new approaches to intervention, which should be considered by Operation Wallacea as it develops plans for activity in developing countries such as Honduras. Put simply, there is a consensus that development projects, initiated by western organisations operating in developing countries, should be participatory, and should empower communities to set and achieve goals for positive change, particularly through the transfer of skills and knowledge. This approach is illustrated, in this part of Honduras, in the work of Fundacion Banhcafe, which transfers production and marketing skills and removes some of the financial barriers to their activities. This model, advanced by Maia Green in an article in the *Critique of Anthropology* published in 2000, is ‘the development of a person by themselves’. This approach will ensure that change is acceptable to the people concerned, and promoted by them in the long term, and it will avoid some of the pitfalls of past interventions that have failed to take the people with them or achieve lasting benefits. It may be achieved by working with people to influence their goals (bringing environmental concerns up the agenda, for instance), and acting to remove some of the obstacles that might prevent these goals being achieved (mitigating the poverty that forces the use of chemicals or the collection of live firewood, for instance). From this perspective, the interests of the outside organisation may be pursued by promoting certain priorities among the people concerned, and working selectively against the obstacles to those goals being achieved.

This report suggests that there are no simple answers to the question of how to promote sustainable development in the buffer zone. This presents a contrast with Operation Wallacea’s experience in some other place, Indonesia for instance, where people could simply be encouraged and/or paid to hand in chainsaws. In this part of Honduras, I think, the forms of environmentally damaging practises are varied and a little more subtle. They include the collection of live firewood, possibly some illegal hunting, and – probably most important – agricultural intensification: clearing scrub land and using pesticides to farm it, often for tomatoes or coffee. Nevertheless, the findings of this report point have a number of implications for action, some more practical than others, which are set out below.

Fair Trade

- It would be desirable to help establish a system of Fair Trade certification for shade grown coffee in this area; this would be enhanced by forming contracts with all members of the communities, and would result in both increased access to markets and seeds, leading to sustainable personal and commercial cultivation.

Cooperatives

- There is a need for assistance in providing the education and technical assistance necessary for the setting up of cooperatives and small enterprises. Existing organisations such as FunBanhcafe cannot cope with demand and would welcome and assist in the establishment of new projects, particularly for the smaller farmers they do not serve.

Investment in Sustainable Agriculture

- Since poorer households are currently excluded from financing and some marketing outlets, e.g. FunBanhcafe projects and bank loans, it would be desirable for an outside organisation to act as guarantors for small loans through which less wealthy farmers (generally those with less than 2 manzanas, who do not currently have access to loans) could diversify and invest in environmentally friendly practices;

Tourism

- By further spreading the wealth from tourism to provide an alternative source of income for small farmers, it would be possible to reduce pressure on farmers to intensify landuse to unsustainable levels. This would therefore improve living conditions and have an environmentally positive effect.
- By increasing the geographical range of Wallacea employment (including guides, cooks, porters and all others), it should also be possible to further disseminate positive environmental knowledge and practices, since the study has found that employment in the park spreads such knowledge.

Education

- Direct investment into education will result in increased access to education and greater value of the teaching. Investment in education should focus not upon textbook provision (books are already provided by schools according our research), but rather through improved staffing (teachers are in short supply in both the college and schools);
- Finally, it is desirable to better communicate the work of Operation Wallacea, perhaps through a permanent public exhibition, not only as a matter of public relations, but also to further disseminate environmental knowledge. This exhibition might ideally be interactive rather than didactic.

Suggested Topics for Further Research

This social science survey conducted in the buffer zone around Buenos Aires has answered some of the immediate questions relevant to Operation Wallacea's presence in and contribution to this region, and to its forthcoming proposal to the World Bank. It also establishes a context and basis for further research, which may be taken up by dissertation students in 2006 and/or doctoral students from 2006 through the GEF/World Bank funding period to 2010, and possibly through an ESRC case studentship submitted by Operation Wallacea in partnership with Richard Phillips/ University of Liverpool.

As explained above, there are no easy answers to the question of how sustainable practises can be promoted in this area. This question can be addressed, however, through future research, which would:

- Map and quantify the extent of agricultural intensification, including the expansion of open coffee;
- Study the relationship between soil fertility and agricultural potential and change in the area;
- Assess the environmental impact of agricultural change in the area;
- Track the impacts of this process upon households and their land over a period of several years (which investments bring returns, which do not; how long do the returns last before the land is exhausted, if that happens);
- Track the impacts upon the health of households, including people directly exposed to chemicals and others in the household and village (following up suggestions that respiratory conditions are increasingly common);
- Investigate the causes of intensification? E.g. is it because people simply need the money, or (counter intuitively) do they have money to invest?
- Also to ask how could people be encouraged to invest in more sustainable forms of development?
- With the same physical, social and cultural capital (the same people on the same land), what would these more sustainable practises be?
- What, precisely, are the likely impacts of these sustainable practices (another question for natural as well as social scientists).
- Investigate the effects of credit organisations, transport and marketing of crops
- Comparison of different generations' environmental knowledge
- Social structure of environmental knowledges: age, gender, class, etc.
- Compare SEK and LEK in other locations.
- Comparison ecotourism in Cusuco and Pico Bonito parks: why is the latter more successful and could Cusuco follow its lead?
- Detailed census of the three villages and collation of existing material. This would extend the detailed census that was produced for Buenos Aires in 2004 to surrounding villages, and then tracking the households over a period of years, watching the specific changes they make, the reasons for them, and the effects they have on the people, their land and the wider environment.
- What complex of outside forces, such as the World Bank, IMF, Honduran Government (at different levels), European Union, national and regional overseas development agencies, charities (such as Spanish Red Cross) are already active in this area? What are their experiences of attempting to divert people towards sustainable development? Is there scope for inter-agency coordination and cooperation?

Appendix A: Questionnaire

Introductions: supervisor; student; translator; guide/contact.

I am here with a group of English students researching communities in this area. We hope that this research will help these communities receive funding from the World Bank. Any information you give us will be confidential and anonymous.

Estamos aqui con un grupo de estudiantes ingleses, haciendo investigaciones en las comunidades de esta area. Esperamos que estas investigaciones ayudaran a las comunidades a recibir dinero del Banco Mundial. La informacion que usted nos da sera confidencial y anonima.

Background

1. How many years have you lived here?

Por cuantos anos ha vivido aqui?

2. How many people normally live in your household?

Cuantas personas viven en su casa normalmente?

3. How many males? And their ages?

Cuantos varones? Y sus edades?

4. How many females? And their ages?

Cuantas hembras? Y sus edades?

5. What is your main source of livelihood?

Cual es la forma de que gana la mayor parte de la vida?

6. What proportion of your total household livelihood is this? (prompt: e.g. half, quarter, etc)

Translate to spanish

7. What are your other sources of livelihood? (prompt if necessary: e.g. work for pay, driver, informal trading, etc.)

Cuales otras formas de ingresos tiene? (Dinero y otras?)

8. What proportion of your total household livelihood does each represent?
(prompt: e.g. half, quarter, etc)

Translate to spanish

9. What is your total household annual income?

Translate to spanish

10. Do you own your own land? If not, do you rent etc?

Tiene su propia tierra? Si no, la alquila?

11. How much land do you own/rent/use?

Cuanta tierra tiene/alquila/usa?

12. Do any of the children in the household go to school? (prompt: details)

Cuantos ninos de su casa van a la escuela?

13. What level of schooling, if any, did the adults in the household receive?
(details)

Por cuantos anos fueron los adultos de la casa a la escuela, y hasta que edad?

14. Would you like the opportunity for children in your household to have a longer education?

translate

15. What would make this possible?

translate

Livelihood

1. Does your household have different jobs throughout the year? (prompt: people that live in the house)

La gente que viven en su casa tienen trabajos diferentes en diferentes meses del año?

2. Do you have everything you need in the household? (prompt: everyone in house)

Tiene todo lo que necesita en la casa?

3. Has anyone in your house not been able to work in the last two years due to poor health?

En los últimos dos años, hay alguien en su casa que no ha podido trabajar por causa de enfermedad o accidente?

4. Has a friend or neighbour helped you improve your livelihood?

Le ha ayudado alguna vez un amigo/vecino a mejorar su vida?

5. What do you use your land for?

Para que usa su tierra?

6. How much do you travel from Buenos Aires?

Cuántas veces sale de Buenos Aires? Y a dónde va?

7. If your house has access to electricity, what do you use it for? (prompt: full list)

Tiene electricidad en su casa? Para que la usa?

8. Can you think of a time when you might need something you cannot afford?

Puede pensar en algún momento en el que necesita algo pero no tiene dinero?

9. What would you do to get it?

Como haría este dinero?

10. If you had extra money now, what would you use it for?

Translate

Agriculture

1. What do you grow on your land?

Que cultiva en su tierra?

2. What do you do with what you grow?

Que hace con lo que cultiva?

3. If you sell it, who do you sell it to? (prompt: specific company etc)

Si lo vende, a quien lo vende?

4. Do you work together with any other growers to sell produce?

Trabaja con otros jornaleros para vender lo que cultiva?

5. If yes, what do you think are the advantages of this?

Si si, Que son las ventajas?

6. Does anyone outside the household work for you? How many?

Hay otras personas que no viven en su casa que trabajan para usted?

Cuantas?

7. Do you know the current price you receive for your crops? Details? (*prompt: price per unit but also total monetary value received for main crops over year*)

Sabe cuanto dinero recibe para sus productos? (see prompt)

8. Do you use any chemicals on your crops?

Usa quimicos/pesticidas/fertilizantes?

9. Do you have access to (farm) machinery?

Y maquinas?

10. Where do you get your seeds from? (prompt: specific company etc)

De donde viene sus semillas?

11. Do you receive any help/assistance from outside organisations or the government to help you grow your crops?

Recibe ayuda de otras organizaciones o del gobierno para crecer lo que cultiva?

12. Why might it be difficult for you to grow more and/or better crops to sell?

Seria dificil para usted cultivar mas/mejores productos? Porque?Park and Environment

1. What do you understand by the terms core zone / buffer zone?

Que entiende de las frases zona nucleo y zona de amortiguamiento?

2. Where do you think the park boundaries start? (prompt: e.g. along road or path)

Donde empiezan las fronteras del parque?

3. How often do *you* go to the park? (daily monthly etc)

Cuantas vece va usted al parque?

4. Do you know any rules that affect your use of the park? (prompt: anything you are not allowed to do?)

Sabe las reglas del parque?

5. Do you think these rules protect the park – its animals and plants etc – or could they be more effective?

En su opinion estas reglas protegen el parque – los animals y las plantas – o podrian ser mejor?

6. Do you know any rules that affect your use of the buffer zone? (prompt: anything you are not allowed to do?)

Sabe las reglas de la zona de amortiguamiento?

7. Do you think these rules protect the buffer zone – its animals and plants etc – or could they be more effective?

En su opinion estas reglas protegen la zona de amortiguamiento – los animals y las plantas – o podrian ser mejor?

8. What animals and plants are important to you in these areas and why? (e.g. quetzal, toucan, jewel scarab beetle, etc)

Que animales y plantas son importante para usted en estas areas y porque?

9. What impact do you think the park has had on your daily life concerning...

Que tipo de impacto ha hecho el parque en su vida diaria en...

- a. Work opportunities

Oportunidades para trabajar?

- b. Access to natural resources

Acceso a recursos naturales?

- c. Knowledge about animals, plants

Conocimiento de animales y plantas?

- d. Contact with foreigners

Contacto con extranjeros?

10. Do you know who the managers of the park are?

Sabe quien dirige el parque?

11. If there was one thing that should be done to protect the park, which might benefit you, what would it be?

Si hubiera una cosa que debe ser hecho para proteger el parque, y que puede beneficiar a usted, que seria?

Monkeys

1. Are there monkeys present in this area? (i.e. the area near your home)

Hay monos en esta area? (circa su casa)

2. If so, how many, and what kind?

Cuantos y que tipo?

3. What do you think about monkeys?

Que piensa de los monos?

4. Are there more or fewer monkeys in this area now compared to 10 or 20 years ago? Why?

Hay mas o menos monos aqui ahora que hace 10/20 anos? Porque?

Broader Context

Now we'd like to ask more general questions about the outside world, and how it might affect you and people in this area, including here, Cofradia and San Pedro.

Ahora queremos hacer preguntas mas generales sobre el mundo exterior, y como puede afectarle a usted y otra gente en esta area, incluyendo aqui, Cofradia y San Pedro.

1. What do you know of the September 11 attacks on Washington and New York, and the aftermath, and how this might have affected you or people in this area (including here and as far away as Cofradia and San Pedro):

Que sabe de los ataques del 11 de septiembre en Washington y Nueva York, y las secuelas, y como le ha afectado a usted y la gente en esta area, incluyendo Cofradia y San Pedro.

2. And what, if anything, do you know of American companies that make things in this area (prompt: including Cofradia and San Pedro), and how they might affect you or people in this area?

Que sabe de companias Americanas que hacen y/o venden cosas en esta area (y Cofradia y San Pedro), y como pueden afectar a usted y la gente en esta area?

3. Overall, would you say your feelings about the USA are positive, mixed, or negative? Why?

Sus sentimientos de los Estados Unidos son positivos, mezclados, o negativos? Porque?

4. What other foreign companies do you know of, that operate in this area? (prompt: including Cofradia and San Pedro)

Cuales otras companias extranjeras trabajan en esta area? (Y Cofradia y San Pedro)

5. How do they affect you or other people in this area? (Prompt: ditto) And what are your feelings towards them?

Estas companias como afectan a usted y otras personas que viven en esta area?

6. Are you aware of any other foreign organisations such as charities that operate in this area? Prompt: details; and feelings towards them?

Tiene conocimiento de otras organizaciones extranjeras, como caridades, que trabajan en esta area?

7. Have you heard of the national debt? What effect do you think it had?

Ha oido de la deuda nacional? Que efecto tenia?

8. Did you know the national debt was cancelled? If so, do you know how, by whom?

Sabe que la deuda nacional ha sido cancelada? Sabe como, y por quien?

9. What effect might this have on Honduras? And on this area including Cofradia and San Pedro?

Que tipo de efecto puede tener en Honduras y en esta area y Cofradia y San Pedro?

10. Is there anything else that you think foreign organisations or governments could do to help people in Honduras? People in this area? You?

En su opinion hay algo mas que las organizaciones extranjeras/gobiernos pueden hacer para ayudar a los Hondurenos/personas en esta area/Usted?

Finally, Would you be prepared to follow this interview up with a more detailed interview about some of issues we have raised today?

Finalmente, usted seria preperada/o hacer una entrevista mas detallada, sobre lo que hemos hablado hoy?

Thank you!

Gracias!

Appendix B: Census of Buenos Aires

Attached as Excel Document

Source: Operation Wallacea archives

