

**ECOTOURISM IN COSTA RICA:  
AN ECONOMIC FRAMEWORK OF ANALYSIS**

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## **Abstract**

Costa Rica is a small Central American nation that has gained an international reputation as a leader in environmental conservation. This has formed the base for its highly successful small-scale ecotourism industry. However, there are threats from high rates of deforestation and expanding large-scale tourism that is trading on strong environmental credentials. This paper sets out an ecologically sustainable economic framework to firstly examine the Costa Rican experience, and then analyse lessons for general policy development of any ecotourism industry. The analysis is conducted from a political economy perspective on the trade-offs between small-scale and large-scale tourism.

### ***Keywords:***

Ecotourism, sustainable development, ecology and economic trade-offs.

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## **1. INTRODUCTION**

Ecotourism has the potential to be a prosperous economic market as well as delivering ecologically sustainable development to any region that has a unique natural environment. To guide effective ecotourism development, examination of the experiences of countries and regions with a strong ecotourism industry can be useful. Costa Rica ‘...has become renowned as a destination for ecotourists’.<sup>1</sup> This paper explores the Costa Rican experience and its lessons for the development of the ecotourism industry.

Initially this paper defines the ecotourism market and its economic potential. Then an ‘eco-rationalist economic framework’ is set up, which is applied to the Costa Rican experience. Finally lessons from this analysis are raised as issues to be considered in the development of ecotourism in general.

## **2. ECOTOURISM DEFINED**

Ecotourism has undergone a transition. In 1981 Ceballos-Lascurain defined the term as:

Tourism that involves travelling to relatively undisturbed natural areas with the objective of admiring, studying, and enjoying the scenery and its wild plants and animals, as well as any cultural features found there.<sup>2</sup>

More recently, the preferred definition of The Ecotourism Society is ‘...responsible travel to natural areas that conserves the environment and sustains the well-being of local people’.<sup>3</sup>

The change subtly alters the meaning to reflect a more commercial tourist perspective. Thus, ecotourism now includes local as well as long-distance travel. Even going for a walk in the neighbourhood park comes under the ambit of ecotourism.

Almost any activity that involves some sort of interaction with the environment and involves travel beyond the immediate area of habitation of an individual can thus be classed as ecotourism. Commercial tour operators, in their efforts to broaden the market, have included wildlife safaris, snorkeling, diving, bushwalking, trekking, adventure tourism and alternate tourism in the ambit of ecotourism.<sup>4</sup>

Going on an ecotour is no guarantee of good ecology.<sup>5</sup> Ecotourism is a veritable ‘catch 22’: in an effort to see something unspoiled, the tourist helps to spoil it by just being there.<sup>6</sup> In its current usage ecotourism *per se* may not be *economically* sustainable without careful planning and management because it may compete with other forms of tourism.<sup>7</sup> Even more critically:

The label ‘ecotourism’ has been heavily overworked since 1992, however, and may well rebound on its users. There is no evidence that it symbolizes positive perceptions to most people and a danger that unsustainable practices may be taking place in ecologically fragile areas, masked by a superficially beneficial label.<sup>8</sup>

In the context of such commercial and ecological difficulties, the experiences of an ecotourist ‘leader’ needs to be analysed to gain understanding for future ecologically *and* economically sustainable developments.

### **3. THE ECO-RATIONALIST FRAMEWORK**

An economic framework is needed to analyse Costa Rica’s experience in developing an ecotourism market. The resulting analysis could then provide lessons for regions that aim to advance their own ecotourism market. This framework has to be both broadly rational in economic terms and also ecologically sustainable in handling the ecological dilemmas that arise. This ‘eco-rationalist’ framework begins

with an identifiable *goal* (e.g. a deeper ecotourism market) which has potential for economic success and then applies an ecosystem perspective as a rational *means* of achieving this in an ecologically sustainable manner. This is essential in ecotourism, since too rapid an economic success without the ecosystem perspective will end up destroying the basis of this economic success.

The framework outlined below is based on two analyses. First is Adolph Lowe's 'instrumental analysis' as a way of using 'instruments' to achieve agreed goals. Lowe<sup>9</sup> established an analytical framework designed to enable rules of formal logic to be applied to economic cause and effect sequences over historical time. This framework is particularly aimed at using such cause-effect principles to set up state structural adjustment policies that can deliver a sustainable, equitable and ecologically supportive economic environment. Lowe calls this '...the search for the economic means suitable for the attainment of any stipulated end. To this procedure I have assigned the label of instrumental analysis.'<sup>10</sup>

Public policy instrumental analysis needs to concentrate on investment, which is the central element of any path to economic growth. Analysis and evidence show that uncertainty by the 'mistake-ridden private sector' causes investment instability and undermines any smooth effective path to economic growth.<sup>11</sup> Private corporate investment strategy that is best suited to innovation needs a stable business environment.<sup>12</sup> In market-based economic regions or nations that lack relevant supportive physical and social infrastructure, there is insufficient order and coherence to impel the creation of innovative ecologically sustainable investment projects by the private sector without a state structural adjustment policy.

Second is Michal Kalecki's 'perspective planning'.<sup>13</sup> This is incorporated into the framework to provide an investment strategy to establish motivation and voluntary

conformity towards ecologically appropriate goals. A path of dynamic diffusion of new technology systems needs to be established that is conducive to innovation in investment for a sustainable physical environment. This requires long-term investment strategies to have an incrementally adjusting *perspective* planning approach. To achieve this it is necessary to establish specific practical short-term goals to induce innovation in investment that eventually adds up to the long-term goals specified. The plan must be continually assessed at every short-term end-point to see whether it is necessary to revise the goals and the strategy for reaching the broad-based long-term scenario. A perspective plan with these goals is set up to form a specific investment program in consort with agreed ecological 'rules' that deliver the type of ecological sustainability determined by the 'instrumental analysis'.

In Kalecki's planning approach, there are two specific resource-saving parameters that provide ecological-efficient criteria to rules formulation.<sup>14</sup> One is the coefficient of real depreciation, the aim of which is to reduce this coefficient by proper maintenance and repair systems to equipment and infrastructures. The other is the coefficient of better utilisation of existing productive capacity. 'Greater output may be obtained from existing plant due to improvements in the organization of labour, more economical use of raw materials, elimination of faulty products, etc.'<sup>15</sup>, thus reducing the coefficient's value. Together these resource-saving coefficients provide a sound basis for ecological rules in a sustainable ecotourism strategy.

Barbier<sup>16</sup> developed some ecologically sustainable rules that could form the basis of any Lowe-Kalecki plan. These rules deal with rates of both exploitation of natural resources and generation of wastes that specific ecosystems can assimilate for long-term 'carrying capacity' sustainability. The problem is that different 'stakeholders' (or interest groups) in ecotourism use alternative critical load carrying

capacity measures. Hoffmann<sup>17</sup> identifies (i) *physical* capacity, which is the absolute limit on tourist numbers that a resource can cope with; (ii) ecological or *real* carrying capacity, which is the level of visitation beyond which unacceptable ecological impacts will occur in terms of which ecotourists and ecologists are prepared to contemplate; and (iii) social or *effective* carrying capacity, which is the level beyond which unacceptable change occurs on the effective delivery of the tourist service in terms of overcrowding and altering social behaviour. Large business interests tend to support (i), while small local based businesses, public environmental bureaucracies and ecologists tend to support (ii). The direct service providers 'on the ground' (e.g. rangers, local environment groups, low-impact ecotourist services) tend to support (iii). Kalecki's resource-saving coefficients can be applied to all three capacity measures.

The perspective planning approach needs to first set up a dialogue between all stakeholders on how to achieve a deeper ecotourist market in any region using structural adjustment policies that plan to alter the economic base of the region. The aim is not 'end-of-pipe' solutions to ecotourism build-up, but instead an innovative pro-active set of actions that significantly alter the operation of ecotourism using all the tools available in the new information and communication technologies (ICT). This requires understanding of the possible means to develop the industry with ICT and an appreciation of the value of all three carrying capacity indicators as rules for monitoring, evaluating and developing each stage in the plan. Networking between all the stakeholders over the goals, means and their assessment must be rapid and continuous. Then meetings need to be arranged where constructive dialogue concentrates on the means of achieving the goals based on the data available and rules used to assess this data. Once a plan has been developed, there must be continual re-

evaluation of these rules over time so that they are not static and reflect the latest innovative technological changes.

Economists currently writing on the physical environment recognise that all attempts to incorporate ecological concerns depend on judgements, whether via the market or through the democratic processes suggested by the Lowe-Kalecki framework. Hodge explains that to have confidence in the effectiveness of these rules ‘...any prescriptions will have to embrace a wide range of capital assets and precautionary rather than optimising approaches have to be adopted.’<sup>18</sup> The planning system behind these rules provide a level of confidence that induces innovation in investment that leads to revisions both in carrying capacities and economic growth for future iterative re-evaluations of the perspective plan.

Since it is impossible to define with any certainty what sustainability requires, a risk averse investment strategy needs to be initially introduced, and not based on a static optimising (and optimistic) cost-benefit comparison. This points to the use of the *effective* carrying capacity rate as the critical ruling measure. Over time what sustainability requires is a ‘shifting target’ that depends on the new information and technology that becomes available and on the changing attitudes and expectations adopted by the generation that has democratic public control. This democratic control implies grass-roots input from the people who understand and operate within the fragile ecosystem together with ability to influence directly the goals and means used to develop the ecologically sensitive economy.<sup>19</sup>

In achieving the sustainability objective, Hoffmann<sup>20</sup> argues for strategic alliances between the stakeholders. There are vast ideological and business differences between all the stakeholders, especially with regards to their support for different carrying capacity rules. Under these conditions, it seems alliance across all



stakeholders will be very tenuous, if not impossible. Democratic control requires networking across all parties, but then decisions on the plans and implementation must be arrived at by majority support. The minority, even if more economically powerful, must accept the need to act within the bounds of the majority-based plan and policies.

Borrowing from the ‘cumulative causation’ literature,<sup>21</sup> the Lowe-Kalecki ecological framework provides a growth of effective demand based on certain sustainability rules that establishes certainty within which innovative investment can flourish. Continual iterative re-evaluation of the investment plan encourages further innovation that leads to more acceptable and internationally competitive sustainability rules. This creates ‘self-reinforcing internal dynamics’ that induce strong international competitiveness and greater economic growth and employment.<sup>22</sup>

In summary, this framework has three crucial elements:

- i. Ecological rules that ensure capital investment is resource-saving with long-term carrying capacities which are sustainable.
- ii. Perspective, flexible and risk averse investment strategy with democratic control.
- iii. Cumulative effective demand that establishes a strong market share.

#### **4. COSTA RICA, THE JEWEL OF CENTRAL AMERICA**

Costa Rica is a small Central American nation that has ...gained an international reputation as a leader in environmental conservation...[o]ver the last thirty years...developed a system of national parks and other protected areas which now cover a quarter of the country’s land area.<sup>23</sup>

This has formed the base for its ecotourism industry. On the other hand, Costa Rica has a high rate of deforestation outside its protected areas.<sup>24</sup> Numerous

publications have described the sustainable development initiatives taken by the Costa Rican President Jose Maria Figueres in 1994 at the beginning of his four-year term as a boon for ecotourism.<sup>25</sup> Marshall<sup>26</sup> notes that the marketing of ecotourism in Costa Rica has been the foundation of a highly successful tourism industry embedded in small-scale, locally owned lodges and hotels that are integrated with the local communities and the natural environment. Strong government support and an effective local community in a naturally appealing ecosystem are factors that provide the potential for a successful ecotourism industry. These factors are susceptible to being undermined. Both sides are examined below.

*On the debit side...*

Criticisms of the Costa Rican ecotourism experience stem from the late 1980s. During this period there was severe underfunding for protected natural areas. As well at this time, agriculture - especially the over 20 per cent of gross national product from cattle farming – was identified as causing major environmental problems. These took the form of range fires to kill tree seedlings, destruction of forests for cultivation, indiscriminate use of pesticides and over-fishing by shark fishermen. A 1991 World Resources Institute study estimated total cost of over \$4.1 billion in depleted soil, forests and fisheries resulted between 1970 and 1989.<sup>27</sup> Such depletion severely detracted from Costa Rica's conservation claims.<sup>28</sup>

Discredit of ecotourism was followed by a growing trend towards mass tourism developments with 'numerous' contract signings with international consortia to build tourist condominiums under the rubric of 'environmental sensitive natural attractions'.<sup>29</sup> The massive *Papagayo Ecodevelopment* project (1,144 homes, 6,270 hotel units, 6,584 hotel rooms, plus marina, shopping centre and golf course) was the

high-point of this mass tourism push.<sup>30</sup> This project created the severe negative ecological-based concerns that led the new Figueres Government to stop its development, but many environmentally unsustainable projects had been completed by then. Mowforth and Munt<sup>31</sup> note that these mass-based investment projects led to the decline of inbound tourists in 1995, with barely 50 per cent accommodation capacity used. This undermined the strength of ecotourism and threatened the small-scale community-based development approach.<sup>32</sup>

As part of the Figueres 1994 sustainable development program set out below, entry fees for foreigners to most national parks was increased by a factor of ten. This led to an overall 26.5 per cent decrease in national park visits by inbound tourists.<sup>33</sup> With the majority of tourists to national parks being low-budget backpackers, small-scale ecotourism suffered relative to the expanding mass tourism market that is to the benefit of the larger international consortia that had invested huge amounts in environmentally unsustainable tourist projects. The government also benefited from park revenue increase, as higher-budget tourists replaced to some extent low-budget tourists.<sup>34</sup>

Recognising the large effect on inbound tourism of the entry fee increases, on the 1 April 1996; the entry fees were lowered from \$15 to \$6 (still a factor four price rise from initial fee). At the same time, hotel and car rental companies lowered their daily rates by 15 per cent.<sup>35</sup> Combination of these two new pricing policies signaled a significant shift in the ecotourism market from small-scale community based low-budget backpackers to mass eco-tours centred around large resorts and hotels with ecotourists that spend above average tourist dollars. This shift creates significant environmental costs, as mass tourists are voracious consumers of water, power and all

other consumable resources. Their per capita consumption of existing resources is considerably more than of local residents and low-budget ecotourists.<sup>36</sup>

*On the credit side...*

During the first year of President Figueres four-year term (1994), he started a program aimed at reversing the rate of deforestation of his country which developed through the 1980s and in so doing repair criticisms of Costa Rica's ecotourism experience examined above. The following 'deforestation initiatives' were introduced in 1994 by the Figueres government:<sup>37</sup>

- establishing a new carbon tax aimed at restoring tropical forests on idle cattle pastures
- imposing a new electricity tax (with tax credits for efficient electrical appliances) to promote energy conservation
- replacing a planned oil-fired electric generating facility with a new geothermal plant
- halting development of a non-sustainable Pacific coast resort hotel (*Papagayo* project)
- stopping construction of an environmentally hazardous paper mill and port at a sensitive location
- committing to double the size of Costa Rica's national and wildlife reserves to about 25 per cent of the country's land area
- supporting the National Institute of Biodiversity (INBio) to catalogue Costa Rica's species<sup>38</sup>
- selective farming, where the forest is used for marketable products rather than cut down
- education program whereby the employees of conservation parks give day long field biology classes six times a year to high school students
- establishing a national bamboo project, that aims at using fast growing native bamboo as a low cost replacement for wood and concrete in home construction
- imposing a new petrol tax, which had made Costa Rica 20 to 30 per cent more expensive than its neighbours
- encouraging the preservation of privately owned rainforest and its use as ecotourist destination<sup>39</sup>

- promoting ‘research holidays’ where holiday-makers pay to do research during their vacation.

In economic terms, these above measures increased revenue from ecotourism to become the country’s highest export earner, beating agriculture (former number one).<sup>40</sup> Tourists from the USA to Costa Rica were surveyed and the results showed that on an average they injected US\$1,150 per visit into the Costa Rican economy.<sup>41</sup>

In ecologic terms, the increased area of land set aside for national parks is a huge gene pool of more than five hundred thousand species that inhabit it. The above measures aim to have forests harvested in a controlled, sustainable fashion in support of the tourist, chemical, pharmaceutical and genetic industries. These measures will be seen to be successful *if* they result in raising both Gross Domestic Product and forest cover, while reducing lake and river siltation, reef destruction, and fishery depletion. It is too early to assess these long-term goals.

Using the eco-rationalist framework, the Costa Rica experience is examined for lessons in ecotourism development. Analysis is conducted at two levels. First, at the three-element level identified in the framework, to provide a macro response to the broad thrust of policies. Second, to examine specific initiatives and their applicability to other regions.

## **5. LESSONS FROM COSTA RICA I: BROAD POLICY DEVELOPMENT**

*The first element* is the establishment of ecological rules in ecotourism that allow for resource-saving and sustainable carrying capacities. There is a problem in setting long-term carrying capacity rules. In Costa Rica, the Guayabo National Monument (217 hectares) is the most significant archaeological site in the country and was visited by 12,356 persons in 1990, of which 92 per cent were domestic nationals.

Inadequate government funding has led to severe deterioration of the site. A rigorous study measured the carrying capacity of the site and three different measures of carrying capacity were calculated: physical (2.8m. visits per year), real (1.04m.) and effective (0.27m.).<sup>42</sup> Promotion of the site will be reflected by the measure used. Long-term sustainable ecotourism would suggest the use of *effective* carrying capacity as the crucial rule, which would also allow significant resource-saving by reduced depreciation and more proficient utilisation. Given the very much lower usage rate implied in this rule, powerful economic interests would support more strongly the *physical* capacity rule. In this context, the very positive Figueres sustainable ecological program is severely marred by pressures to use carrying capacities that support mass ecotourism.

Resource-saving argues for the spread of ecotourism numbers over a much broader range of natural environment sites, which can only come with strict carrying capacity rules being enforced with a management plan to redistribute ecotourists. This can work with low-budget ecotourists and their ecological concerns and interests, who could be persuaded to investigate other lower carrying capacity significant sites. Mass ecotourists, who aim for the major tour sites, maybe less inclined or able to be influenced along these lines. Any limit of tourists to the most significant sites will greatly affect major tourist operators who depend on these big sites to attract customers.

*The second element* is the risk averse and democratic-based strategic investment plan. Costa Rica had the foundations for such a plan with the local-oriented, small-scale and community-based tourist-related businesses and environmentalists. They all operated out of the various tourist sites, but with no effective network. There was only a limited supply of large-scale luxury hotels until

the mid-1980s. Such a base could be networked with their primary concern on the environment. Then all tourism-based investment plans could be developed to be risk averse in order to ensure the *effective* carrying capacities of the sites are taken as limits to tourism.

A combination of two factors altered this foundation: an influx of foreign large-scale projects into the ecotourism sector and an ecologically risk-oriented tourism strategy plan. Robust investment by major international consortia on large-scale tourist resort projects have been made in an effort to provide the mass international tourist market with a destination that enjoyed an international reputation as a leader in environmental conservation.<sup>43</sup> Government recognised the need for a broad strategic management plan to handle the influx of investment projects and the rising tourist numbers (as evidenced in the lack of a plan at the Guayabo National Monument). This was certainly needed, but by the time the new Figueres Government framed such a plan, the political and economic power of foreign capital and large domestic capitalists had altered the parameters. Now the plans were based on much larger and more ecologically risk-oriented projects, with higher carrying capacity limits used. At the same time the Government needed to maintain its environmental conservation image to attract tourists to these large resorts, so the excellent specific initiatives outlined earlier were enacted. However, the democratic environmental input of the local communities as an effective network of decision-making, management and monitoring was missing.

Ecotourism sites tend to start with the same foundation of local-oriented, small-scale and community-based network of tourist-related businesses and environmentalists. As in Costa Rica, they initially lack an integrated network to assist in any democratic input into a strategic plan for investment. Early on in the evolution

of the ecotourism industry in a region there tends to be no large powerfully based mass tourism sector to influence the outcome of any plans. At this stage, the establishment of an information technology industry strategy is an essential prerequisite to effectively network the small-scale tourist and environmentalist interests.<sup>44</sup> With such an electronic network, an ecotourism plan along the lines of the eco-rationalist framework could be developed.

*The third element* is cumulative effective demand which would provide the customers to ensure success of any investment strategy. Costa Rica has the name recognition to build-up a strong demand, with a level of certainty developed through an established strong market share. However, business and state actions in the early 1990s sent mixed messages to tourists, that led to uncertainty and threatening name recognition. Signs of mass tourism (even with ecotourism as a 'label'), with price signals to support this (national park entry fees), sent the sensitive low-budget ecotourists to other destinations. Costa Rica then needed to alter its marketing strategy to fit in with the more expansive investment activities. To prevent undermining of its conservation image, all the initiatives outlined above were required and needed to be signaled to the new larger big-budget ecotourism end of the market. The success of this switch in commercial and ecological terms requires research and analysis in the near future.

Name recognition of a region in environmental terms establishes a niche low-budget ecotourism market. Marketing campaigns are needed to encompass a higher-budget ecotourism market (e.g. wine/good food-classy accommodation with ecotourism). This can, in principle, diversify the tourist potential without creating severe dilemmas in the ecotourism end of the market. Such a strategy is possible as long as the new higher-budget ecotourism market can remain distinct and with



relatively small-scale ecologically-sensitive operators having an effective decision-making presence, but also networked in with all ecotourist interests. Allowing huge resort-type investment projects to take advantage of the significant natural environment and enter the ecotourism sector without support of other stakeholders could lead to short-term uncertainty and long-term ecologically unsustainable developments that threaten the ecotourism industry.

## 6. LESSONS FROM COSTA RICA II: SPECIFIC INITIATIVES

General applicability of the conservation-based Figueres initiatives that were introduced to enhance the economy's ecotourism credentials are examined here. These initiatives are grouped into categories and assigned a short illustrative assessment of their help in further developing sustainable ecotourism for any region:

- i. *Taxation measures*: Carbon and petrol State taxes earmarked as environmentally enhancing may be a problem for regions that are already taxed relatively high. Anti-tax sentiments and relatively expensive tourist destinations make these propositions politically and practically difficult. Energy efficient tax credits (for heating) and tax discounts on environment taxes (travel discounts with prior purchase of national park tickets) should be considered as better environment-based tax measures as they go directly to addressing Kalecki's resource-saving parameters.
- ii. *Strategic eco-developments*: Areas of potential are renewable energy (solar, wind and ocean tides); hemp (as an alternative to bamboo) industry start-up support for wood, paper and cloth replacements<sup>45</sup>; selective forest plantation farming; alternative ecotourist sites developed; and promotion for broadening nature of ecotourism (bicycling, wind and forest farms, wine-ecotourism). All need development by strategic niche management (SNM), which is state support for appropriate innovative technologies to be incubated in niche markets and expanded as there is market transition to more sustainable systems.<sup>46</sup> SNM is specific structural adjustment under Lowe instrumental analysis. Lowe analysis also indicates need for high initial state infrastructure and support, shrewd and sophisticated marketing/management and committed private investors. Often these elements are generally in very short supply for many significant ecotourist regions.

- iii. *Education and research*: Biodiversity species cataloguing; intensive conservation park school student visit program (with eco-awareness competitions); and constant monitoring of environmentally-sensitive tourist activities (e.g. commercial horse riding; use of chemical insecticides administered by hotel staff<sup>47</sup>). This requires closer linkage between educational and research institutions within the region, and the public state environment organisations. From the Lowe analysis, major advantages are gained from such ‘instrumental’ linkages with relatively low costs under an ICT network.
- iv. *Natural ecotourist destinations*: Need a broadening of these destinations by setting aside more natural habitat for eco-sensitive tourism, which require stringent enforcement. From a Lowe perspective, use of privately owned forests as ecotourist destinations could be cost-effective, *if* they are included within an overall community-based sustainable development ecotourism strategy.
- v. *Removal of environmentally hazardous activities*: Deterrence of large-scale resort projects which endanger sustainable ecotourism (like *Papagayo*), and structural adjustment of the economy away from traditional ecologically harmful industries. This would be the most controversial and difficult change, given the traditional extractive industry economic base in many ecotourism regions (e.g. mining and forestry). Ecotourism, to be resource-saving and broadly successful, *must* be integrated with other environmentally low impact economic developments in new industries centred on information technology and services (hospitality, domestic help, aged).

The Kalecki-Lowe framework, when applied to a set of specific initiatives, provides two guideposts. First is that no matter how laudatory a set of specific state environmental initiatives are, they need to be part of a broad eco-sustainable plan with all three-elements outlined in ‘Lesson I’ in place. Without such a plan, the initiatives could be ineffective or counter-productive as large mass tourist operations influence their implementation. Second is that these initiatives have a cumulative causation dynamic as they become more embedded into the economic structure and provide reinforcing innovative activities, requiring regular re-evaluation of specific goals and aims.

## 7. CONCLUSION

Based on Lowe and Kalecki, an ecologically sustainable economic framework was outlined to analyse sustainable development in any sector or region. The framework was then applied to ecotourism, and in particular the Costa Rican experience. With this framework as a backdrop, policy initiatives in the ecotourist paradise of Costa Rica were examined for the strains and dilemmas they created.

The analysis shows that, with strong broad local-based input into investment strategies, policies can be designed to promote *both* economic and ecology-based sustainable ecotourism that address short sightedness such as damage to the environment, risk aversion and imperfect information. In the process, governments should set economic and environmental goals for ecotourism in consultation with the complete range of environment-based stakeholders: ecologists, farmers, community workers and ecotourist businesses. A long-term strategic plan must be produced to set out these short-term evolving goals and their implementation, specifying not only the turnover in terms of dollars and cents but also in terms of environmental outcomes such as resources used and effluent discharged. Experiences in Costa Rica, both positive and negative, serve as lessons in framing such a plan.

Two general conclusions on ecotourism can be drawn from the above analysis:

(i) Ecotourism needs to be developed in an ecologically sustainable manner that does not become mass tourist-based and in a way that does not displace other ecologically sustainable activities. (ii) Ecotourism needs to be integrated as part of a gamut of sustainable activities based around modern service and information-oriented industry development. Both tasks require skill, but would overcome dilemmas evident in Costa Rica.

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- <sup>21</sup> See C.J. Ricoy, 'Cumulative Causation', in J. Eatwell, M. Milgate, and P. Newman (eds.), *The New Palgrave: A Dictionary of Economics*, Vol. 1, Macmillan, London, 1987, pp 730-5.
- <sup>22</sup> For detailed account of this framework with its origins, rigorous explanation and policy implications, see J. Courvisanos, *Investment Planning Towards an Innovative and Sustainable Environment*, School of Economics Discussion Paper 98-02, University of Tasmania, Hobart, 1998.
- <sup>23</sup> Mowforth and Munt, *op cit*, p 310. For a breath-taking scientific and visual view of Costa Rica's ecological credentials, see J. Monge-Nejera, Z. Barrientos, A. Solarzano, M.J. Curry, R. Rojas and J.C. Solano, *The Biodiversity of Costa Rica: An Ecological Guide*, Tropical Nature Press.
- <sup>24</sup> Mowforth and Munt, *op cit*, p 310.
- <sup>25</sup> For example, see D. Burnie, 'Ecotourists to Paradise', *New Scientist*, Vol 142, No. 1921, 16 April 1994, pp 23-25.
- <sup>26</sup> J. Marshall, 'Papagayo isn't Eco-tourism', *Tico Times*, 8 April 1994, p 2.
- <sup>27</sup> D.J. Tenenbaum, 'The Greening of Costa Rica', *Business and Society Review*, No 97, Spring 1996, pp 14-21.
- <sup>28</sup> For details of Costa Rica's rainforest destruction, see J. Vendermeer, V. Shiva and I. Perfecto, *Breakfast of Biodiversity: The Truth About Rainforest Destruction*, Food First Books, 1995.
- <sup>29</sup> Mowforth and Munt, *op cit*, p 310.
- <sup>30</sup> Marshall, *op cit*.
- <sup>31</sup> *Op cit*, p 312.
- <sup>32</sup> Michael Kaye, president of Costa Rica Expeditions tour company, has stated, '...the short-term temptations of the fast and easy money from mass tourism development in the context of an economy the size of Costa Rica's should not be under-estimated.' M. Kaye, 'Costa Rica at the Crossroads: Mass Development or Nature Based Tourism', in *A Call for an International Dialogue on the Future of*

*Costa Rica Tourism*, mailing list on Internet, San Jose, 1994; as quoted in Mowforth and Munt, *op cit*, p 312.

<sup>33</sup> *Mesoamerica*, 'Costa Rica', Vol 15, No. 4, 1996, p 6.

<sup>34</sup> Inelastic demand of inbound tourists for national park visits disguises the elastic demand of low-budget tourist visits.

<sup>35</sup> Mowforth and Munt, *op cit*, p. 312.

<sup>36</sup> L. Cronin, 'A Strategy for Tourism and Sustainable Development', *World Leisure and Recreation Journal*, Fall 1990, pp 12-18.

<sup>37</sup> From Tenenbaum, *op cit*.

<sup>38</sup> This resulted in a US\$1.14 million deal with Merck and Co., the pharmaceutical giant to supply sample biological material for testing. In addition, local expertise has resulted in the development of a unique computer software system that can store information on the country's flora and fauna. This software has found a niche market in the taxonomic world. INBio also found a natural nematocide, which it sells to the British Technology Group, another pharmaceutical giant for an undisclosed sum (see Tenenbaum, *op cit*).

<sup>39</sup> For example, Donald Perry's tram that runs over the canopy of the rainforest and provides an open overview of the green sward in all its glory. 'It opens the verdant visage for research as well as tourism without disturbing the micro-environment even the slightest' (W. Caragata, 'Branching Out: Science Meets Tourism in the Costa Rican Rainforest', *Macleans*, Vol 108, No. 20, 15 May 1995, p 58).

<sup>40</sup> Tenenbaum, *op cit*.

<sup>41</sup> S. Meukhaus and J. Lober, 'International Ecotourism and the Valuation of Tropical Rainforests in Costa Rica', *Journal of Environment Management*, Vol 47, No. 1, May 1996, pp 1-10.

<sup>42</sup> Mowforth and Munt, *op cit*, pp 107-8.

<sup>43</sup> Marshall (*op cit*, p. 36) in his analysis of the massive *Papagayo* project asked this rhetorical question:

Instead of promoting massive centralised tourism projects tied to foreign capital, why doesn't the ICT [Costa Rican Institute of Tourism] concentrate on the careful planning and development of a network of quality, locally owned and operated, small scale tourism businesses that are compatible with the natural environment and integrated within the existing structures of local communities and economies? (as quoted in Mowforth and Munt, *op cit*, p. 313)

<sup>44</sup> On details of such information technology strategies adopted in two regions, see J. Courvisanos, *Investment in Innovation: An 'Instrumental Analysis' Based on the Tasmanian and New Brunswick Information Technology Strategies*, School of Economics Discussion Paper 98-04, University of Tasmania, Hobart, 1998.

<sup>45</sup> On the success of the hemp industry prior to the Second World War, see *Popular Mechanics*, 'New Billion-Dollar Crop', Vol 69, No. 2, February 1938. On assessments of the very strong potential for hemp in the paper industry, see A. Capelle, 'Hemp: Specialty Crop for the Paper Industry', in J. Janick (ed.), *Progress in New Crops*, ASHS Press, Arlington VA, 1996; and S. Lisson, *An Integrated Assessment of Hemp and Flax as Sources of Fibre for Newsprint Production*, PhD dissertation, Department of Agricultural Science, University of Tasmania, Australia 1998.

<sup>46</sup> See R. Kemp, J. Schot and R. Hoogma, 'Regime Shifts to Sustainability through Processes of Niche Formation: The Approach of Strategic Niche Management', *Technology Analysis and Strategic Management*, Vol 10, No. 2, 1998, pp 175-95.

<sup>47</sup> See Freedman, *op cit*.