IICA

ENVIRONMENTAL ARREARS TO THE IMPOVERISHED HILLSIDE FARMERS IN "XAYMACA"[1]

by

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"WHAT IS IICA?"

The Inter-American Institute for Cooperation on Agriculture (IICA) is the specialized agency for agriculture of the Inter-American system. The Institute was founded on October 7, 1942 when the Council of Directors of the Pan American Union approved the creation of the Inter-American Institute of Agricultural Sciences to be headquartered in Costa Rica.

IICA was founded as an institution for agricultural research and graduate training in tropical agriculture. In response to changing needs in the Americas, the Institute gradually evolved into an agency for technical cooperation in the field of agriculture. These changes were officially recognized through the ratification of a new Convention on December 8, 1980. The Institute's purposes under the new Convention are to encourage, facilitate and support cooperation among its Member States, so as to better promote agricultural development and rural well-being.

The Member States participate in the Inter-American Board of Agriculture (IABA) and the Executive Committee, the Institute's governing bodies, which issue the policy guidelines executed by the General Directorate. Today, IICA has a geographic reach that allows it to respond to needs for technical cooperation in the countries, through its Technical Cooperation Agencies and five Regional Centres (Andean, Caribbean, Central, Northern and Southern), which coordinate the implementation of strategies tailored to the needs of each region. The Regional Center for the Caribbean is located in Trinidad and Tobago.

The participation and support of the Member States and the relations IICA maintains with its Permanent Observers and numerous international organizations provide IICA with channels to direct its human and financial resources in support of agricultural development throughout the Americas.

The 1994-1998 Medium Term Plan (MTP) provides the strategic framework for orienting IICA's actions during this four-year period. Its general objective is to support the efforts of the Member States in achieving sustainable agricultural development, within the framework of hemispheric integration and as a contribution to human development in rural areas. The Institute's work is aimed at making changes in three aspects of agriculture: production, trade and institutions, using an integrated approach to development which is based on sustainability, equity and competitiveness. IICA carries out its technical activities in four Areas of Concentration: Socioeconomic Policies; Trade and Investments; Science and Technology; Natural Resources and Agricultural Production; Agricultural Health; and Sustainable Rural Development. IICA's actions receive support from two Specialized Services: Training, Education and Communications; and Information, Documentation and Informatics.

The Member States of IICA are: Antigua and Barbuda, Argentina, the Bahamas, Barbados, Belize, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, St. Kitts & Nevis, St. Lucia, St. Vincent & the Grenadines, Suriname, Trinidad & Tobago, the United States of America, Uruguay and Venezuela.

Its Permanent Observers are: Arab Republic of Egypt, Austria, Belgium, European Communities, France, Germany, Hungary, Israel, Italy, Japan, Kingdom of the Netherlands, Portugal, Republic of Korea, Republic of Poland, Romania, the Russian Federation and Spain.

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SUMMARY

There is little documented empirical evidence to support popular claims of widespread rampant watershed degradation in Jamaica. Whilst it undoubtedly occurs, it is confined to specific locations. Farming systems as practiced by hillside farmers favour natural regeneration and compatibility due to being low-intensive and highly diversified crop-mix farming systems. Small hillside farmers on public or private land play a major role in the protection of the watersheds, notwithstanding the fact that their farming systems are not sustainable, for environmental friendliness and poverty levels are not compatible nor enduring. Hence in summary, their farming systems appear to be environmentally friendly and sustainable as long as the incentive systems that encompass them are ensured.

Jamaica's watershed environmental degradation is determined by analyzing its causes and further disintegration; and certainly what happens in the watersheds impacts on the society as a whole. Properly functioning watersheds are desirable not only because they connect the associated anguish, hope and livelihood of farmers, but also because of the economic contribution to society. For example, an inconceivable scenario of Jamaica without its "small hillside farmers"; Ocho Rios, lacking its "Dunn's River Falls"; The Blue Mountains no longer enriched with vegetation; The lush and green of Jamaica being bare and brown; Kingston, Montego Bay, and other cities and towns without adequate water supply, "Xaymaca", land of wood and water, no longer being? Thus, to design economic incentives to intervene in the watersheds requires policies that respond to the economic and social importance of hillside agriculture.

The issue is to reconnoiter the watersheds' environment not from a moral or ethic perspective, but instead to incorporate its value in economic terms, "valuing" the environment beyond the moral or aesthetic view. Briefly, to "value" what the society considers significant and ineluctable if Jamaica does not reckon the state and future of its watersheds, then the society hardly will dispose of an objective measure that it can relate to. Indeed, personal discernment in dealing with the watersheds will prevail unless there is a well-defined indicator - predominantly economic values.

Economic incentives are the main driving force that promote the small hillside farmers to improve and maintain their present farming systems. Proliferation of poverty has assumed an important role in affecting the balance between economic incentive and environmental protection. Watershed protection would be best ensured when society acknowledges the environmental benevolence of Jamaica's hillside agriculture and remunerate the farmers for their environmental production, for so long overlooked by society in general - in short, a case in which the impoverished hillside farmers are subsidizing the country at large.

ENVIRONMENTAL ARREARS TO THE IMPOVERISHED HILLSIDE FARMERS IN "XAYMACA."[2]

INTRODUCTION

Environmental degradation and poverty exist side by side, and are portrayed as a downward mutually often reinforced causal relationship. A preponderant negative occurence when related to agriculture conjoined with small farmers- especially in fragile and natural resource base of steep and rocky land with shallow soils found on the hillsides. Often unsound agricultural practices on the hillsides lead to deforestation, which in turn intensifies soil erosion and degradation, losses of flora, fauna, and bio-diversity. These are all frequent pronouncements on Jamaica's watershed degradation induced by hillside agricultural practices.

Contrasting those prevailing arguments, *Reyes/94* conceptually postulates that Jamaica's hillside agriculture reflects an environmentally amicable farming system, despite the poverty levels of its practitioners - an environmental patrimony worth pursuing. Associated with this is a claim that this endowment is not impendingly sustainable due to discordant private and social benefit-cost relationships, which merits to be vigilant[3].

It is commonly accepted that Jamaica's watersheds are a source of a wide range of economically valuable functions, goods and services such as:

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[2] ***Representative of The IICA Office in Jamaica.***

[3] ***Reyes-Pacheco, A., 1994. Jamaica's Hillside Agriculture: An Environmental Endowment. page 18 "....The economic rationale of Jamaica's "Hillside Agriculture" implies that the farming units show on the one hand a private Benefit/Cost relationship to be less than one which is neither economically nor socially sustainable, and on the other, a social Benefit/Cost ratio greater than one which is environmentally sustainable."***

i. a natural resource base of renewable and non-renewable resources; -agriculture, forestry, mining, etc.

ii. a set of natural goods such as landscape and amenity resources; --unspoiled landscapes, clear air and water, peace and quiet, scenic beauty, etc.

iii. an assimilation capacity for waste; and

iv. a supporting life system; -bio-diversity, etc.

Thus, economic principles can be applied to a variety of environmental goods and services as mentioned. Economics can play a role for the efficient allocation of those resources, functions, and environmental output among the society, whether direct and indirect users of raw materials or enjoyment of amenities.

The environmental soundness of Jamaica's watersheds depends on problems identified which will then be the basis for designing feasible solutions for hillside agriculture. Granted an environmental strategy which proposes "valuing" the environment and paying its producers- in this case the small hillside farmer, might not be palatable and appealing to all political, economic and social concerns --stakeholders. This paper attempts to raise the public awareness of hillside agriculture's inter-relationship with the health of the watersheds and the environmental debt owed to small hillside farmers. This might aid in generating political will for change and a climate to support needed action.

Hills/88 concludes that small farmers with their traditional farming system -- food forest, display unsurpassable management skills pertaining to taking risk[4]. This is illustrated by how effectively Jamaican small farmers have maneuvered within a delicate and limited natural resource base. Nevertheless the price of hillside farming in Jamaica is unsustainable- reflected in the additonal cost of environmental friendliness and the new urgencies created by increased poverty *(Reyes/95)*.

Indeed, "Present allegations of heightening hillside degradation seem to highlight a conviction that farmers are trying to be more productive, but not necessarily in a manner which is concordant with the natural resource base. Their farming systems in themselves are not an important factor for explaining soil erosion and degradation of the watersheds, but rather the poverty alleviation measures that they have been taking predominantly in the last four years. This has meant intensive land utilization, thus departing from their traditional farming system."[5] These farming systems are at risk, as farmers incorporate changes to solve their poverty levels by increasing production and productivity.

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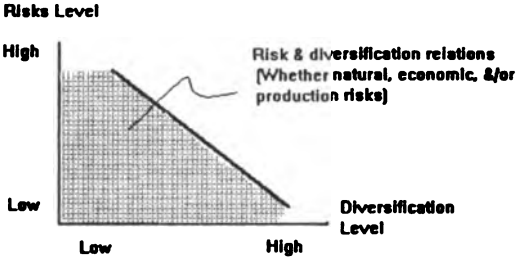
[4]***Hills, T.L., 1988 The Caribbean Food Forest Ecological Artistry or Random Chaos. Page 21 "The definition of the food forest...., claims that it is an agronomic, economic and social device. Sufficient agronomic characteristics have been identified to justify this claim,.....In many respects the food forest is one of the finest socio-economic achievements of the Caribbean small farmer.....".***

[5]***Reyes-Pacheco, A., 1995. Environmental Friendliness and Poverty: The Price of Hillside Farming in Jamaica. Page 12.***

The small hillside farmers' risk-tolerance and confidence are enhanced as farmers take more control over their risk levels through highly diversified farming systems[6]. As illustrated in Figure # 1. the thrust of enhanced risk levels --whether natural, productive and economic, is constrained by the diversification of their agriculture.

Figure # 1
Risks and Diversification



As illustrated, apart from aspects relating to elasticity of the curve, it reflects an inverse relationship --low levels of risk associated with high diversification levels. Positively, diversification aids in controlling risk and this type of farming exemplifies a departure from a single agricultural basket that contains all the eggs --monocropping.

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[6] ***Jamaica's small hillside farmers exhibit a diversified farming system portfolio of crops which adequately match their risk tolerance and time frame.***

Notwithstanding the agronomic and economic soundness of farming systems, their status quo, and their relative suitability for solving Jamaica's hillside agricultural problems, resources may be allotted to the farming system itself, and to external variables that have not been programmed for curtailing intensive land use on a national basis. Among those externalities are the farm-work program, remittances from relatives abroad, public sector subsidies, etc. Thus the task is how to assure the continuation of benign environmental hillside agriculture without achieving the associated high poverty levels of small farmers.

The evolving nature of environmental problems in watershed management dictate an incessant strategic process that assimilates changing needs and priorities of different players, rural and urban populations. An undistinguished basis and sharing of environmental priorities and problems cannot be presupposed. For instance, the problems that emanate as pivotal for the urban population focus on:

i. Lack of safe water and sanitation,

ii. Inadequate management of solid and hazardous waste,

iii. Pollution from vehicles and industrial facilities,

iv. Traffic congestion to traffic and crowding,

v. Occupation and degradation of useable lands, and

vi. Loss of cultural resources and of open spaces.

All these issues are viewed from an urban perspective and are based on inadequate regard to the status of the watersheds. Thus if one is interested in urban environmental affairs the interdependency with the watersheds' future warrants acknowledgment. Indeed, Jamaica's public environmental worries and priorities must embrace the economic well-being of the rural population on the hillsides for the watersheds to be environmentally sustainable.

The success of environmental strategies for hillsides depend on a broad process of decision-making tempered by the active participation and commitment of key stakeholders - whether urban or rural.

Whatever watersheds' importance to the society as a whole, and the effects of bio-diversity or other off-site environmental yields, the incentive system ought to be corrected, and any intervention must be financially viable as well as ecologically sustainable.

The threat of, if not the actual environmental watershed degradation of fragile lands on the hillsides has been a major challenge and concern. If indeed Jamaica is on the one hand confronted with an environmentally friendly farming system on the hillsides, and poverty for its practitioners on the other, two areas of focus can be realized --agricultural production and poverty.

1. Agricultural Production

Increasing agricultural production and productivity on the hillsides upholds the improvement of the actual farming system, and simultaneously environmental compatibility and sustainability. It demands to go beyond the socio-economic variables and their attitudinal perspectives towards technological change that dwell in the technology generation and transfer processes, to modify small farmers' farming systems with scarce resources is a long term proposition.[7] This compels an efficient institutional framework for delivering agricultural services to small farmers. However, with a constricting public sector new approaches are to be envisioned towards cost-effectiveness.

Some determining elements are:

i. Farmers' involvement in decision-making and empowerment;

ii. Promotion of farmers' organization;

iii. Farmers' participation in marketing, distribution of inputs, and rural development planning;

iv. Phased demand-driven and pragmatic agricultural services; and

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[7]*See Williamson, V., & Reyes-Pacheco, A., 1996 Will Small farmers in Jamaica Adopt The Mini-Sett Technology? for a methodological attempt to appraise small farmers attitudes towards risk, change and adoption of an specific technological package.*

v. Marginal direct government intervention in production and marketing.

The public sector can play a role in research and development efforts in fostering appropriate technology on those crops for which the country has a competitive edge or can develop one --in the short and medium run, compatible with the natural resource base. Optimization of this research on pragmatic lines is conceivable through on-farm research methodology, which entails close consultation and participation of farmers. The public sector might have an additional role in unravelling constraints that impede production and productivity, i.e., land tenure, praedial larceny, transparency of the market system, and equitable financial opportunities.

Major strides can be foreseen and made in improving production and productivity through technology innovations, recognizing the inherent risk of new technology to be applied in fragile environments --as the hillsides. "....Modern agriculture incorporates production practices within high technological packages (for example, irrigation, fertilizers, pesticides and other chemical inputs) which diminish if not eliminate climatic and other risks such as pest and diseases, which could greatly affect the environment, vis-a-vis traditional practices, which may be determined to be of low input and consequently environmentally unfriendly. "[8]This issue is further compounded by the fact that improvement must be compatible with the environment, and that structural limitations --land size and capital must be removed or adjusted to sufficiently improve the standard of living of small farmers in order to solve their poverty status.

The profitability of Jamaica's hillside agriculture is crucial for its sustainability. Nevertheless, profitability might not be defined in economic terms alone. Indeed, while there might be other more economical farming systems and practices, customarily greater profits translate into more or greater market

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[8]*Reyes-Pacheco, A., 1994. Jamaica's Hillside Agriculture: An Environmental Endowment. Page 15.*

risks. The small farmers' decision making process evaluates the total farming system, land, labour and capital restraints. Thus, even more important to the farmer than absolute profitability may be the global returns of the entire farm --marginally profitable systems might be used to minimize risk, stabilize cash flows, labour requirements, or other specific needs. The small hillside farming system encompasses what might be economically viable but also sustainable.

2. Poverty

A pre-requisite for solving the poverty situation is an examination of the poverty genesis among small hillside farmers. To overcome poverty, besides dealing with structural problems of production and productivity --land tenure, size, etc., consideration should be given to several facets of rural development that could help ameliorate the situation. Some viable measures that would impact positively on improving the standard of living of rural communities relate to:

i. Infrastructure --rural water and electricity supply, roads, sanitation, etc;

ii. Services --educational and health services, transportation, access to credit and inputs;

iii. Community development initiatives; and

iv. Alternative employment programs --creation of parks, natural reserves, eco-tourism.

Concurrent with the specific activities which are necessary for increasing production and productivity, rural development initiatives and investments are required for enhancing the generation of income. But if society were to assess and pay for the benign environmental externalities engendered by these farmers and accrued to their type of farming, poverty would not be an issue and the watersheds' health could be preserved.

This approach departs from conventional watershed management to one that claims to assign economic values to the environment. Once a monetary value is determined for the environmental public goods and services derived from their innocuous farming systems, it would facilitate the quantification of the environmental subsidies transferred by small hillside farmers to the society, and for which they have not been reimbursed. With a valued market recognition of public goods and services produced by the hillside farmers --richness of flora and fauna, quality water and air, the conservation of the natural resources and bio-diversity, etc. --it is only economically reasonable that its producers should be remunerated.

In summary the environmental sustainability of Jamaica's watersheds rests on the society's financial payment to the small hillside farmers for those amiable externalities, which up to now they have subsidized by maintaining relative "green" and healthy watersheds, but, at a cost --namely that of increased impoverishment of small farmers.

FINAL COMMENTS

The present Government's macro-economic policy strategy is to introduce reforms to liberalize the economy and restructure public enterprises. This is congruent with today's world economic vision in which:

i. Free market forces are predominant in economic policy;

ii. Privatization and private-led initiatives are conductors of economic growth;

iii. Prices and interest rates are market-determined;

iv. Subsidies and distortions are dismantled; and

v. Transparency of the free market system is advocated.

It is within this area that the society is at debt to the small farmers in Jamaica for the environmental benefits that they had produced and continue to generate, and from which the society has enjoyed and derived benefits without due repayment.

Unquestionably, hillside farmers are making social and environmental contributions that can be valued in economic terms, although these benefits are not market determined. In time their farming systems have endured in the watersheds by:

i. Protecting remaining forestry resources;

ii. Supplying alternative tree crops and products;

iii. Providing suitable air and water quality;

iv. Contributing to the country's beauty, mystique, character and value;

v. Enrichment of its bio-diversity; and

vi. Providing sources of employment and income generation for rural and urban communities --tourism, fishing, etc. and thus mitigating rural-urban emigration.

In spite of this, hardly any attempt has been made to define those environmental benefits, or value them. Indeed, the financial arrears by the society to hillside farmers can be economically valued, --if one were to calculate just the financial interest on the referred environmental debt, without taking into consideration the environmental dividends, or the actual value of those benefits owed, and offer compensation to the farmers, poverty on the hillsides will no longer be such a great issue.

This is not a moral or an equity issue, but an economic one, for the society has impoverished the small hillside farmer by not honoring a rightful environmental debt accrued to them, for they have a copyright for providing the watersheds' environmental externalities. In short, the issue of externalities relates to side effects that affect third parties positively or negatively. Identifying and assessing the significance of externalities in practice is a difficult task, for the crucial feature of externalities is that these are goods and services not sold in the market. Thus, their true value usually has been either underestimated or ignored for they have been unmeasured and non-priced. The financing and payment of environmental goods is to be envisioned and drafted.

The environmental costs due to inaction --translated to social, political and economic quantitative value units, is unimaginable. What would be those costs associated with critical stages and rates of watershed degradation? This is a fundamental and vital question to be asked towards the quest of exploring solutions to the dilemma --keeping the environmental friendliness of the hillside farming systems, but without poverty.

Watershed degradation on the hillsides of Jamaica has received considerable national attention, and yet the understanding of the facts tend to be limited, as they are derived from specific case studies. Thus policy and project interventions tend to be made on limited information and within an ambience of uncertainty. Empirical studies are needed which include activities of many farmers with specific agro-forestry systems across a range of environments, to analyze their private and public externalities.

Given the lack and limited availability of hard data dealing with both environmental impacts and their economic consequences of Jamaica's hillsides, calls for rigorous analysis as an ongoing process, rather than a one time event, to help address the most important problem -- reducing poverty, in an environmental and cost-effective manner.

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