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Ecotourism: reinforcing local demand for a “waste to wealth” approach to sanitation

Kate Cave, Bernhard Heikoop, Emmanuelle Quillérou, Corinne Schuster-Wallace

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Ecotourism:
Reinforcing Local
Demand for a
“Waste to Wealth”
Approach to
Sanitation



Ecotourism: Reinforcing Local Demand for a “Waste to Wealth” Approach to Sanitation

United Nations University
Institute for Water, Environment and Health (UNU-INWEH)



UNITED NATIONS
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EXECUTIVE SUMMARY

Ecotourism was originally developed out of a joint demand from tourists for improved rural development and nature conservation, with a strong preference for benefits falling onto local communities. In Uganda, the policy base and social network of the ecotourism sector is young, yet provides a promising and solid foundation for rapid development.

Adequate sanitation facilities are key for a pleasurable (eco)tourist experience, both in terms of personal use and cleanliness of the environment in which they are staying. In turn, (eco)tourists increase the volume of waste generated and collected and therefore increase the volume of positive waste management by-products generated (energy and fertiliser). These by-products can be used to support local tourism through cooking and lighting (energy) and increased food production (fertiliser). This report outlines the potential synergies between the development of an anaerobic digestion sector and the ecotourism sector for the delivery of sustainable sanitation, rural development, and conservation, as well as realisation of social, environmental, and economic benefits.

These physical and economic links demonstrate an opportunity for communities to build upon such synergies, create development opportunities, and scale up sustainable sanitation, provided that there is an enabling environment at the national and the regional levels. There is a definite potential to exploit synergies between the ecotourism and sanitation sectors through an ecotourism-sanitation nexus in Uganda. The establishment of community-owned and -run businesses has the potential to multiply benefits derived from the nexus by the local communities as well as the overall economy.

LIST OF ACRONYMS & ABBREVIATIONS

CBO	Community-based Organisation
LMICs	Low- and Middle-Income Countries
NGO	Non-Governmental Organisation
SNV	Netherlands Development Organisation
TIES	The International Ecotourism Society
UCOTA	Uganda Community Tourism Association
UEPB	Uganda Export Promotion Board
UGSTDP	Uganda Sustainable Tourism Development Programme
UNDP	United Nations Development Programme
UNICEF	United Nations Children’s Fund
UNU-INWEH	United Nations University Institute for Water, Environment and Health
UNWTO	United Nations World Tourism Organisation
WHO	World Health Organisation



Foreword

Community-based ecotourism is an important tool in maintaining environmental integrity and bridging conflict between people and wildlife. It is also a key development approach for empowering community change through employment opportunities and community resources which can be used to develop improved services such as drinking water and sanitation. Ecotourism also plays an important role in the conservation and protection of natural resources (e.g., water, wetlands, forests, etc.). Indeed, communities with successful ecotourism ventures have been able to expand artisan product sales, train young people in tourism careers, and use profits from ecotourism to support education of their children. A clean environment attracts tourists into the country, increasing the country's resource envelope leading to economic growth.

In order to attract tourists to our countries, we need to ensure that we conserve the environment for our wildlife. We also need a clean environment, trained and healthy staff, and access to food products and facilities. The Waste to Wealth approach to improved sanitation is a natural partner to community-based ecotourism. Based on anaerobic digestion, Waste to Wealth is an approach to sanitation which offsets capital costs through sale and use of human waste byproducts. By partnering with ecotourism, these byproducts can offset expenses such as food production and fuel for lighting and cooking.

Such an approach should be considered in many countries where tourism opportunities exist. Empowering communities to be vested in their local environment goes a long way in improving livelihoods and income. This increases their professional development while catalysing expansion of essential services, which is a triple win. As the world adapts to the Sustainable Development Goals, this kind of approach is an interesting solution for rural centers.

Let me take this opportunity to thank all those who worked tirelessly towards making this publication a reality.



Hon. Dr. Maria Mutagamba
Minister of Tourism, Wildlife and Antiquities
Former Minister of Water and Environment
Republic of Uganda



The Waste to Wealth Approach to Scaling Sanitation Access

Sanitation-related illnesses such as diarrhoea have had a devastating impact globally, especially in low- and middle-income countries (LMICs), with over 80% associated with poor drinking water, sanitation and hygiene. It has been estimated that over 800,000 people died as a result of water and sanitation related diarrhoea in LMICs in 2012 (Prüss-Üstün *et al.*, 2014). Over 40% are children under 5 years of age, making diarrhoea the number two killer for children, behind pneumonia and other respiratory infections (UNICEF and WHO, 2009). Most people without access to adequate sanitation live in rural areas of LMICs. Uganda is no exception to this reality; nearly 66% of Ugandans live without access to improved sanitation (WHO and UNICEF JMP, 2015) leaving them exposed and vulnerable to diseases related to poor sanitation including diarrhoea. The Government of Uganda estimates that poor sanitation is costing society at least USD \$177 million annually (Government of Uganda and Water and Sanitation Program, 2012).

Improved sanitation has been recognised as critical to the achievement of other Millennium Development Goals (United Nations, 2008). Moreover, there is a gap between need and financial support, especially in rural areas where the most acute needs are felt (UN Water, 2014). For example, while toilets are necessary, many households cannot afford to pay for waste management. In 2000, Uganda committed itself to the Millennium Development Goals. However, private sector programs to improve sanitation have met with limited success mostly because the low-income household sanitation market is not considered profitable (Government of Uganda Ministry of Water and Environment, 2012). Fundamentally, there is no economic incentive to improve management of human waste, and this is exacerbated by potentially strong social stigma placed on “poo managers”. Thus innovative solutions are required to provide economic incentives for improved waste management.

Simply reducing the cost of managing human waste is not likely to lead to effective waste management, especially in countries where dumping untreated human waste into the environment is free or not effectively penalised under national law. “Waste to Wealth” utilises the value-added by-products from human waste to finance capital cost repayments and develop a reliable revenue stream for operation and maintenance, and service expansion. This is achieved through anaerobic digestion¹ technology, which produces both energy (biogas and

¹ Anaerobic digestion is the process of breaking down (digesting) organic materials, including human waste, by organisms which grow in oxygen-free (anaerobic) environments.

fuel briquettes from bioslurry) and fertiliser (bioslurry) by-products. In turn, these by-products can be used to support local ecotourism development, through the provision of energy for cooking and lighting, and fertiliser for local food production. Benefits of Waste to Wealth, such as a cleaner environment because of sanitation facilities and slowing of deforestation because of alternative fuel sources, further enhance the tourist experience. Moreover, an ecolodge will add back to the raw materials, increasing production volumes of energy and fertiliser. It is these reinforcing feedbacks that form the basis for this report.







Ecotourism for Conservation and Local Economic Development

Ecotourism provides a complement to more traditional forms of conservation such as national parks, especially in areas where they have had limited success due to economic or cultural factors. Creating national parks as nature conservation tools has, for example, proven impractical in many central African countries since 70% of these national parks are inhabited and park borders are, in practice, difficult to manage (Brooks *et al.*, 2006; Mombeshora and Le Bel, 2009). Furthermore, the rapid development of rural tourism has resulted in environmental issues such as pollution and resource degradation (Chaoqun, 2011). This is compounded by the increased energy consumption associated with tourism expansion, prompting calls to exploit renewable energy resources to balance development, tourism, and environmental protection (Ping *et al.*, 2011). Within this context, the development of ecotourism is seen to be part of the solution to decrease negative tourism impacts on the environment.

With no single universal definition of ecotourism, it remains, for the most part, an abstract concept open to interpretation. Within this context, the International Ecotourism Society's definition is most appropriate, wherein ecotourism is defined as "responsible travel to natural areas that conserves the environment and sustains the well-being of local people" (Mowforth and Munt 2003: 139). This definition is elaborated into a number of characteristics (Mowforth & Munt 2003): i) minimise the impact on the environment; ii) foster environmental and cultural awareness and respect; iii) create benefits for both the visitor and the hosts; iv) provide financial contributions for environmental conservation and empowerment of local people; v) sensitise the visitor to the host country's political, environmental, and social climate. Ecotourism is a form of nature tourism with a focus on conservation and is sometimes called "conservation tourism" (Figure 1). The term community-based ecotourism refers to ecotourism activities based on active involvement of local communities (Liu, 1994; Ceballos-Lascuráin, 1996).

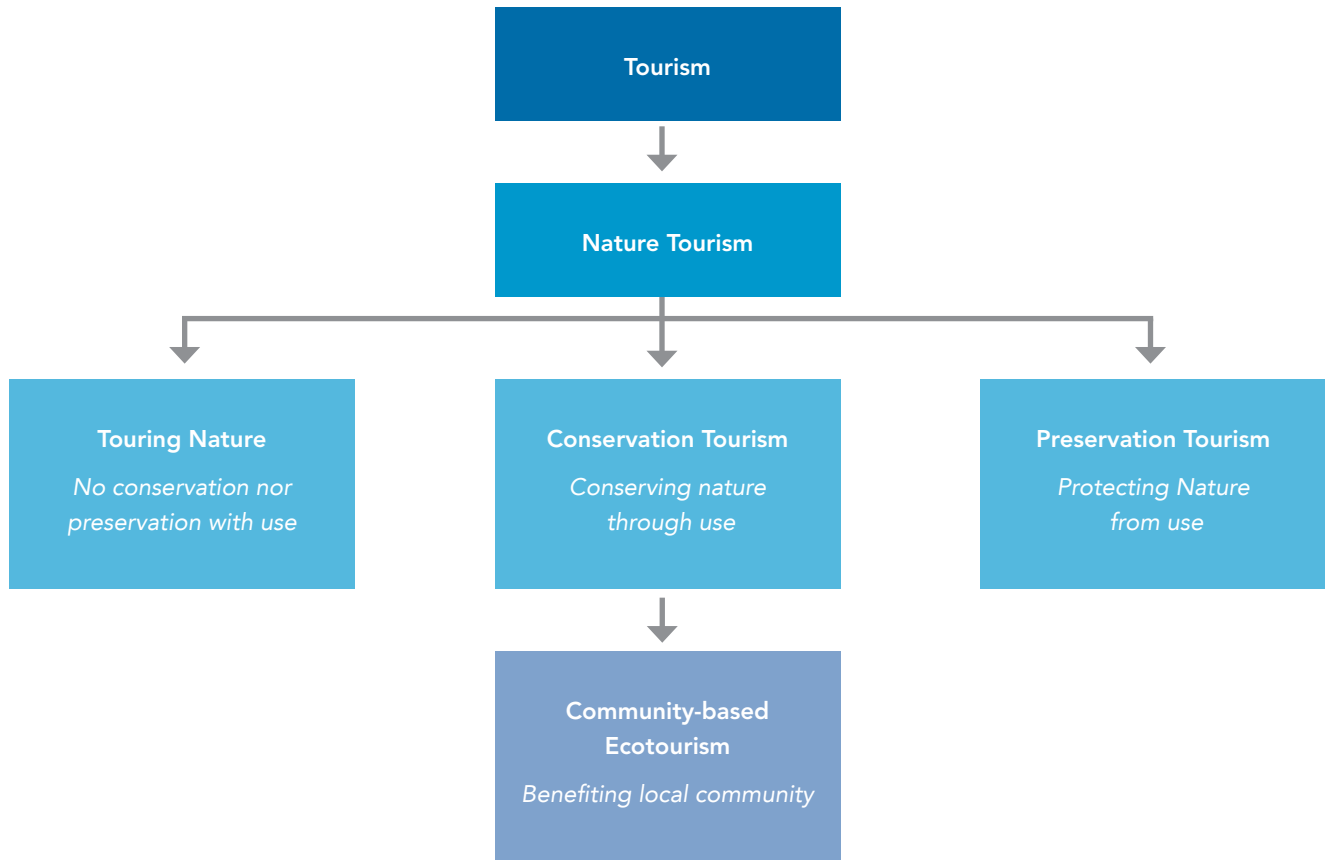


FIGURE 1: ECOTOURISM (ALSO CALLED “CONSERVATION TOURISM”) IN RELATION TO OTHER FORMS OF TOURISM

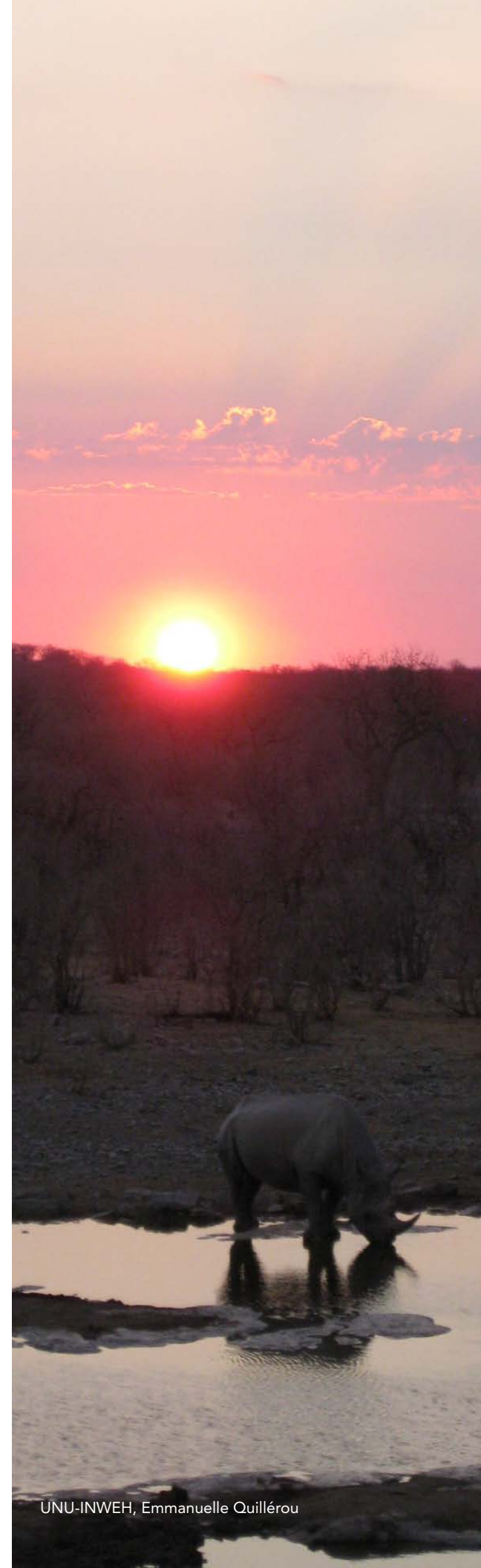
In addition to the direct environmental benefits of environmental conservation, ecotourism has been identified as an important form of rural development in LMICs. There are several reasons why ecotourism may be compatible with the development of rural agrarian communities as well as nature conservation:

- » Natural areas tend to coincide with underdeveloped rural communities (Fisher and Treg, 2007).
- » Ecotourists generally desire to respect local customs and have a positive impact on their host community (West and Carrier, 2004);
- » Research suggests a correlation between biodiversity conservation and locally owned ecotourism ventures (Zanotti and Chernela, 2010); and,
- » Ecotourism creates direct linkages between producers (local farmers and communities) and consumers (ecotourists) at the local level, fostering local economic growth and facilitating a more balanced distribution of wealth (Manu and Kuuder, 2012).

While ecotourism benefits are relatively small in absolute terms (Ashley *et al.*, 2001), they can still accrue significant benefits to communities. Most of these benefits are in the form of income diversification and risk management (Lapeyre, 2010), multiplier effects (Manu and Kuuder, 2012), improved supply of local goods (Barrett and Arcese, 1995), and increased land values (Mbaiwa and Stronza, 2010).

Ecotourism is not without its critics who point to the inability of many ecotourism ventures to achieve their initial goal of joint conservation and development. Coria and Calfucura (2012) identified three factors behind such failures to deliver. The first is that uneven distribution of economic benefits favour external stakeholders, compounded by a lack of mechanisms to redistribute ecotourism benefits effectively (Bookbinder *et al.*, 1998). Second, many communities do not have control over necessary land and resources to be able to invest in ecotourism. Third, many communities have lower decision-making and bargaining power than external stakeholders. Such power imbalance has resulted in conflicts of interests and tensions between the community and external stakeholders (Steenkamp and Grossman, 2001). At the national and international level, failure to redistribute power can hinder the long-term sustainability of an ecotourism project through impacts upon local participation and ownership (Zeppel, 2006; Coria and Calfucura, 2012).

Thus, success depends on **1) more equal distribution of benefits** through, for example, policies which ensure that a portion of revenues are invested in improvement and expansion of social goods and services (Gordillo *et al.*, 2008, Mbaiwa and Stronza, 2010); **2) promotion of local social and political justice goals** (Coria and Calfucura, 2012); and, **3) community decision-making and bargaining power**, including over the land on which the ecotourism takes place (Coria and Calfucura, 2012).





The Ecotourism Sector in Uganda:

Potential to Deliver

Uganda's rich bio-diversity and recent political stability has propelled tourism to become one of the largest economic growth sectors in Uganda. Private investment has developed tourism into an organised and structured sector (Uganda Export Promotion Board, 2006a) and Uganda was named by Lonely Planet as the top tourist destination for 2012. The Government of Uganda (2010), recognising the role of tourism in transforming the country into a modern economy, has prioritised sector support, including a focus on developing and reviewing tourism policy and strengthening legal and regulatory frameworks (Mwaura and Ssekitoleko, 2012). The Ministry of Tourism, Wildlife, and Antiquities is responsible for forming and enacting ecotourism policy in Uganda, supported by the Uganda Wildlife Authority responsible for regulatory policy, and the Uganda Tourism Board promoting ecotourism. Specifically, the Ministry is interested in "*establishing niche markets for purposes of protecting our invaluable environment which is the foundation of tourism development*" (Government of Uganda Ministry of Tourism, Wildlife and Antiquities, 2013:p.60, emphasis added).

While arguably still in its infancy as an economic niche market, globally ecotourism has experienced unprecedented growth rates of nearly 12% per year in the last decade; three times the growth rate of the tourism industry as a whole (TIES, 2006; UNWTO, 2001). With the legislative and policy support already in place in Uganda, along with development assistance programs, the potential for future growth is significant especially given the global appetite for ecotourism (Uganda Export Promotion Board, 2006a). This is clearly demonstrated through a social network map of existing Ugandan stakeholders with publicly stated involvement in ecotourism and their interconnectedness (Figure 2)². The Uganda ecotourism sector already involves government, academia, professional and trade associations, NGOs, and the private sector, with well-established relationships between stakeholders.

While the government encourages private sector-led growth, private ecotourism enterprises argue that there are significant barriers to entry and success, including inaccessible private funding and over taxation (Uganda Export Promotion Board, 2006a). As with ecotourism around the world, Uganda has not yet managed

² Stakeholders were identified through organisation information available on the Internet (see Appendix I for additional information). Larger nodes (dots) reflect more connections with other organisations, and links between nodes represent acknowledged connection with other actors (no available quantitative data on the strength or size of the connection itself).

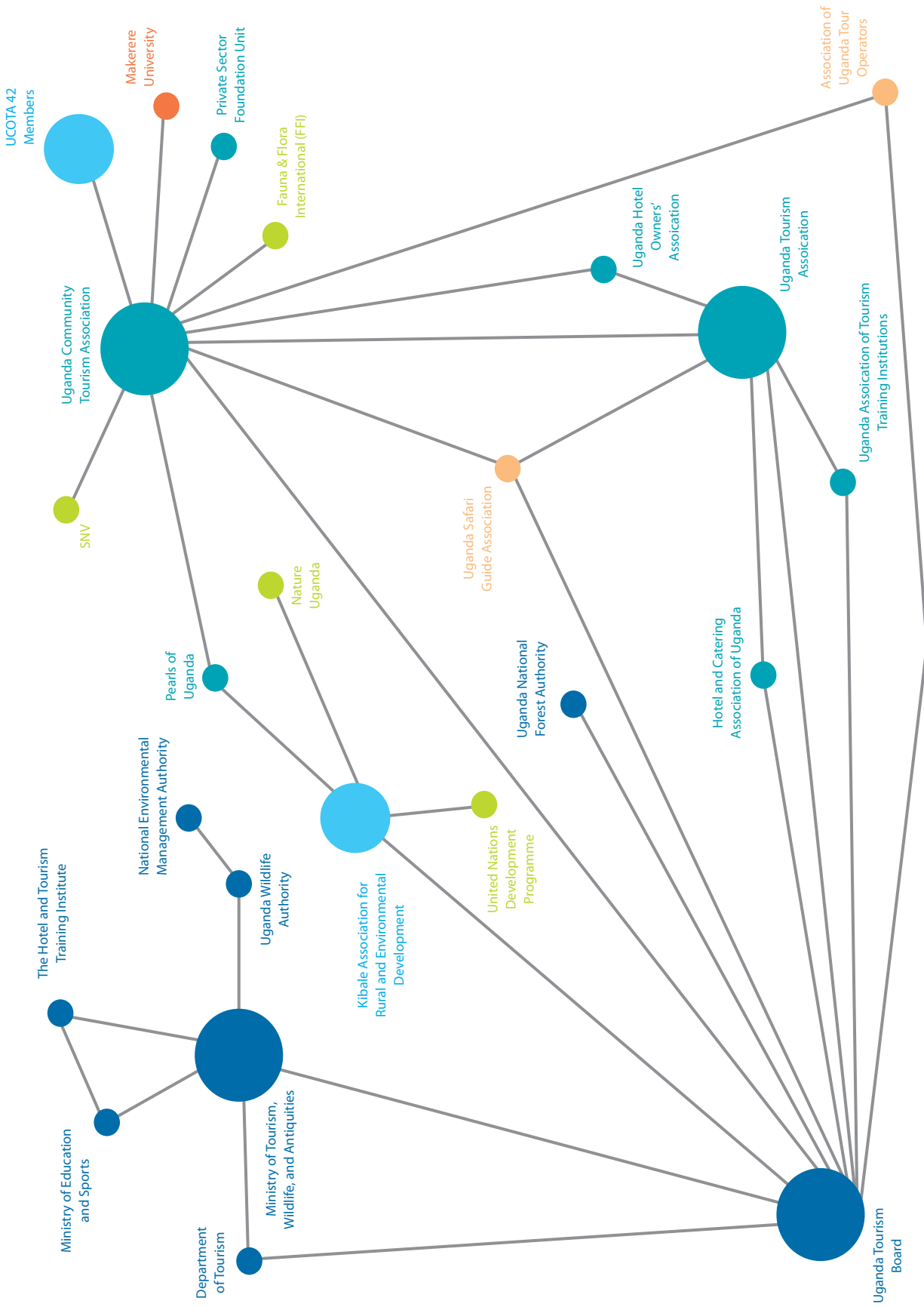


FIGURE 2: SOCIAL NETWORK MAP OF ECOTOURISM ACTORS IN UGANDA (MICROSOFT EXCEL AND NODEXL ADD-ON)

● = NGO AND INTER-GOVERNMENT. ● = GOVERNMENT. ● = EDUCATION. ● = PROFESSIONAL ASSOCIATIONS. ● = TRADE ASSOCIATIONS. ● = BUSINESS.



to solve the issue of local communities and households receiving minimal benefits from ecotourism projects. Locals are often only able to access menial employment opportunities while higher labour is sourced outside the community (Uganda Export Promotion Board, 2006a). Some efforts to empower local communities have been made, including collaborations between the Netherlands Development Organisation (SNV), the Uganda Community Tourism Association (UCOTA) and the Uganda Sustainable Tourism Development Programme (UGSTDP) (Uganda Export Promotion Board, 2006b). Other barriers to growth of the ecotourism sector include poor roads, inadequate tourist information, an under-skilled labour force (Government of Uganda, 2012), and weak marketing that is further being eroded through budget cuts (Uganda Export Promotion Board, 2006b).



An Ecotourism-Sanitation Nexus:

Potential Synergies for Mutual Benefits and Delivery of Sustainable Sanitation, Rural Development, and Conservation

Explicit political will, established social networks, and policies indicate a solid institutional base from which Uganda could trigger rapid economic development of the ecotourism sector. However, these need to be translated into practice on the ground, requiring external and/or bottom-up initiatives from local communities to develop the ecotourism sector. In this manner, ecotourism and sanitation demonstrate potential synergies. Sanitation access in Uganda is off track to meet the Millennium Development Goal targets (WHO and UNICEF JMP, 2015) and is hampered by inability to achieve sustained behaviour change and a need to diversify rural financing sources (Government of Uganda Ministry of Water and Environment, 2014). It is estimated that addressing Uganda's sanitation issues could increase tourism revenue by USD \$3.9 million (Government of Uganda and Water and Sanitation Program, 2012). After all, diarrhoea affects local inhabitants and tourists alike³.

Given this nexus between sanitation and ecotourism, the Waste to Wealth approach provides a framework for realising synergies between the two sectors. Ecotourism is a potential way to reconcile conservation of natural resources and economic and rural development while expanding local demand for energy and food (Figure 3). It generates increased job opportunities and wealth, but also waste that needs to be managed. Waste to Wealth harnesses human waste to create value-added by-products which can be used to meet this increased demand. When combined, the potential exists to deliver sustainable sanitation, rural development and conservation, as well as economic benefits through economies of scope. A practical method for understanding the benefits of this ecotourism-sanitation nexus is the use of a flow chart to demonstrate how one good or service is linked to another good or service, and the benefits of each. Figure 4 illustrates how the outputs from an anaerobic digester (food, energy, and goods production) can be the inputs for the operation of an ecolodge while the outputs of the ecolodge (human and food waste) can, in turn, become inputs for the anaerobic digestion plant. The community health, environmental, and economic benefits of anaerobic digestion technology (UNU-INWEH, 2014) further

3 Diarrhoea is nicknamed "tourista" in French, because it is a disease typically affecting tourists out of their home countries, more prominently when visiting LMICs.

reinforces the sustainability of the nexus. Moreover, renewable energy technology for the development of low-carbon tourism has been cited as an important alternative to carbon rich sources of energy (Chaoqun, 2011), which is precisely what an ecotourism-sanitation nexus has to offer.

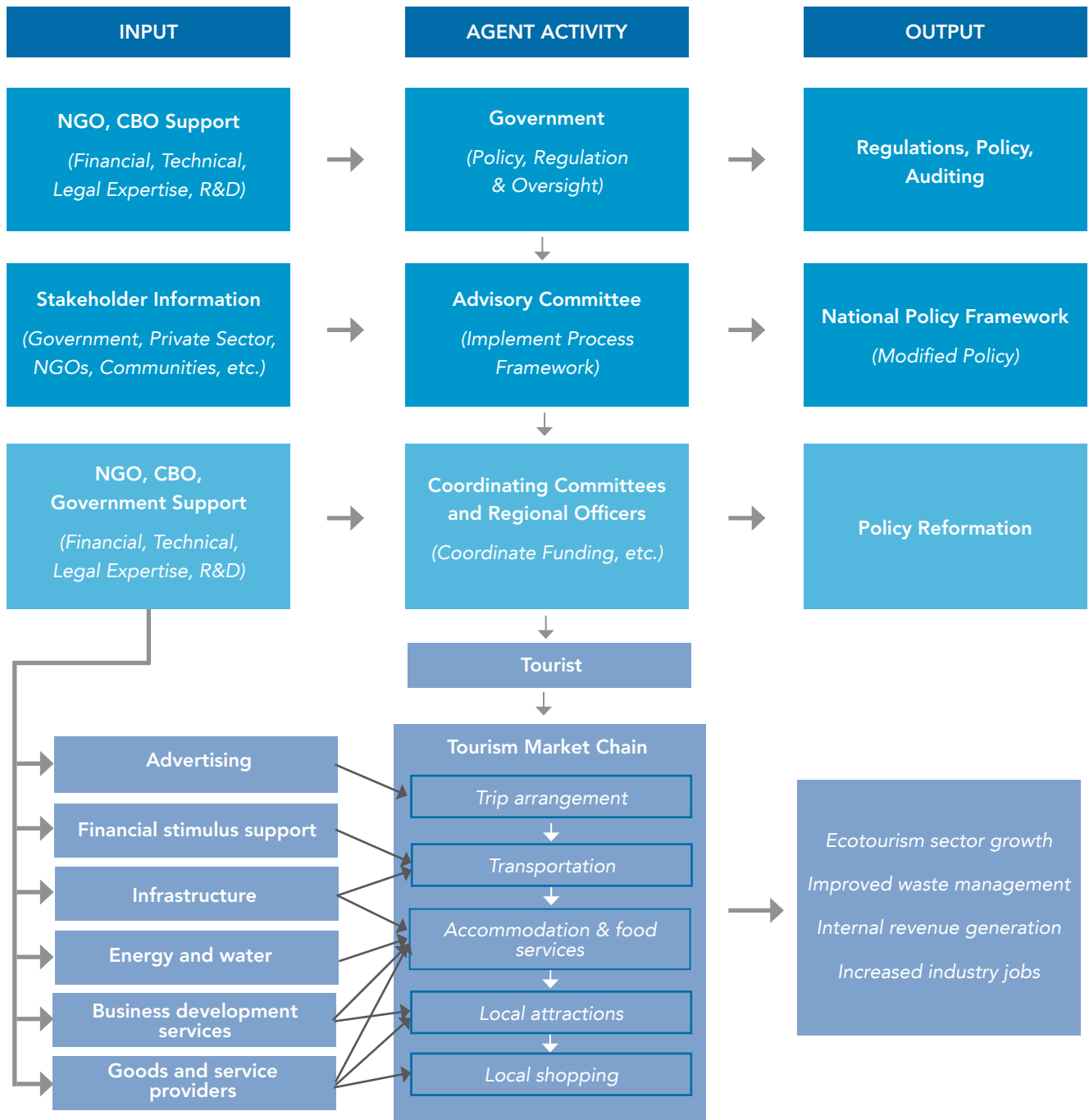


FIGURE 3: TOURISM MARKET CHAIN (IN PURPLE, MICRO LEVEL) WITH NATIONAL SUPPORTING FRAMEWORK (MACRO LEVEL BLUE) AND COORDINATION FRAMEWORK (MESO LEVEL, AQUA)

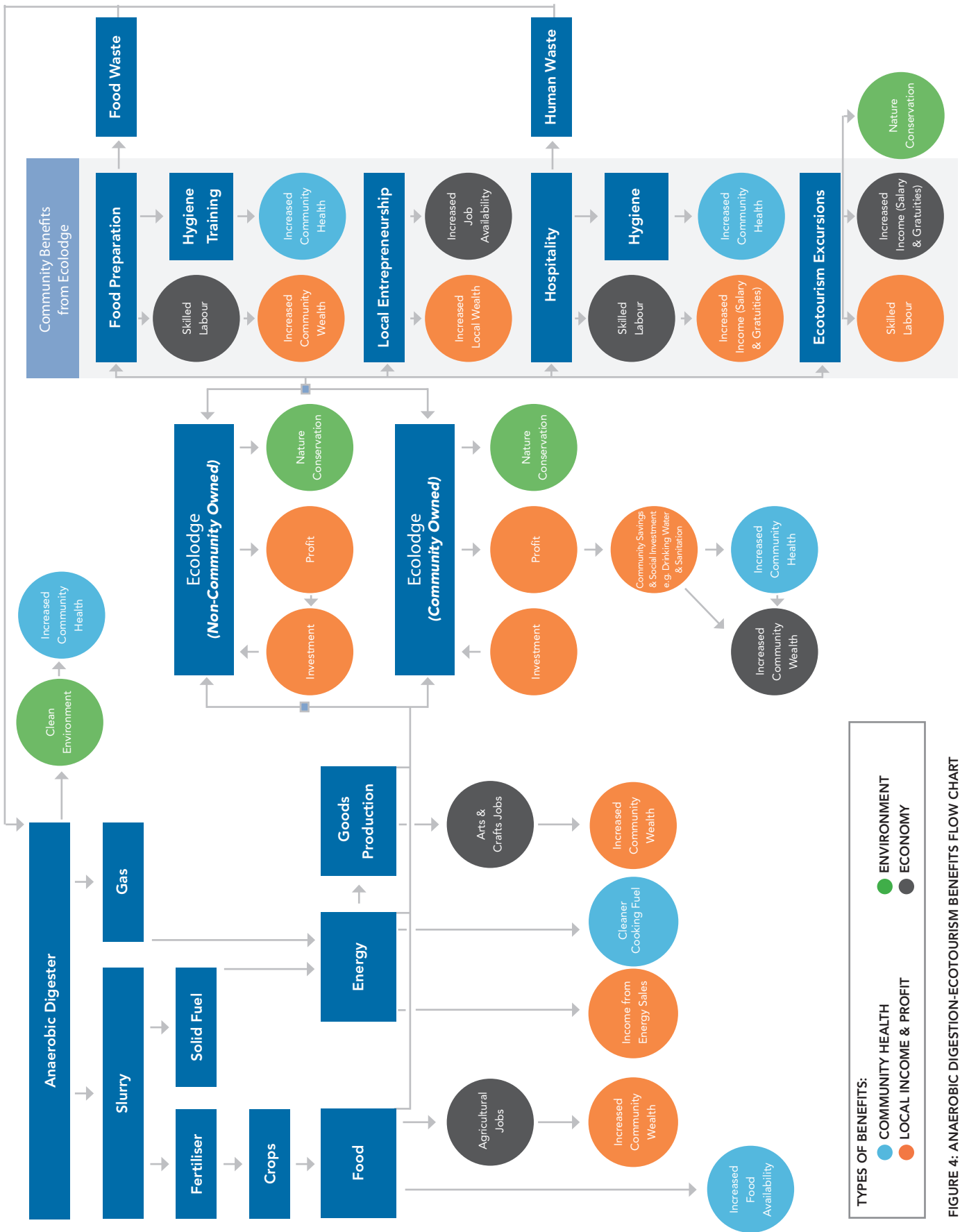


FIGURE 4: ANEROBIC DIGESTION-ECOTOURISM BENEFITS FLOW CHART



Interdependencies within the Ecotourism-Sanitation Nexus

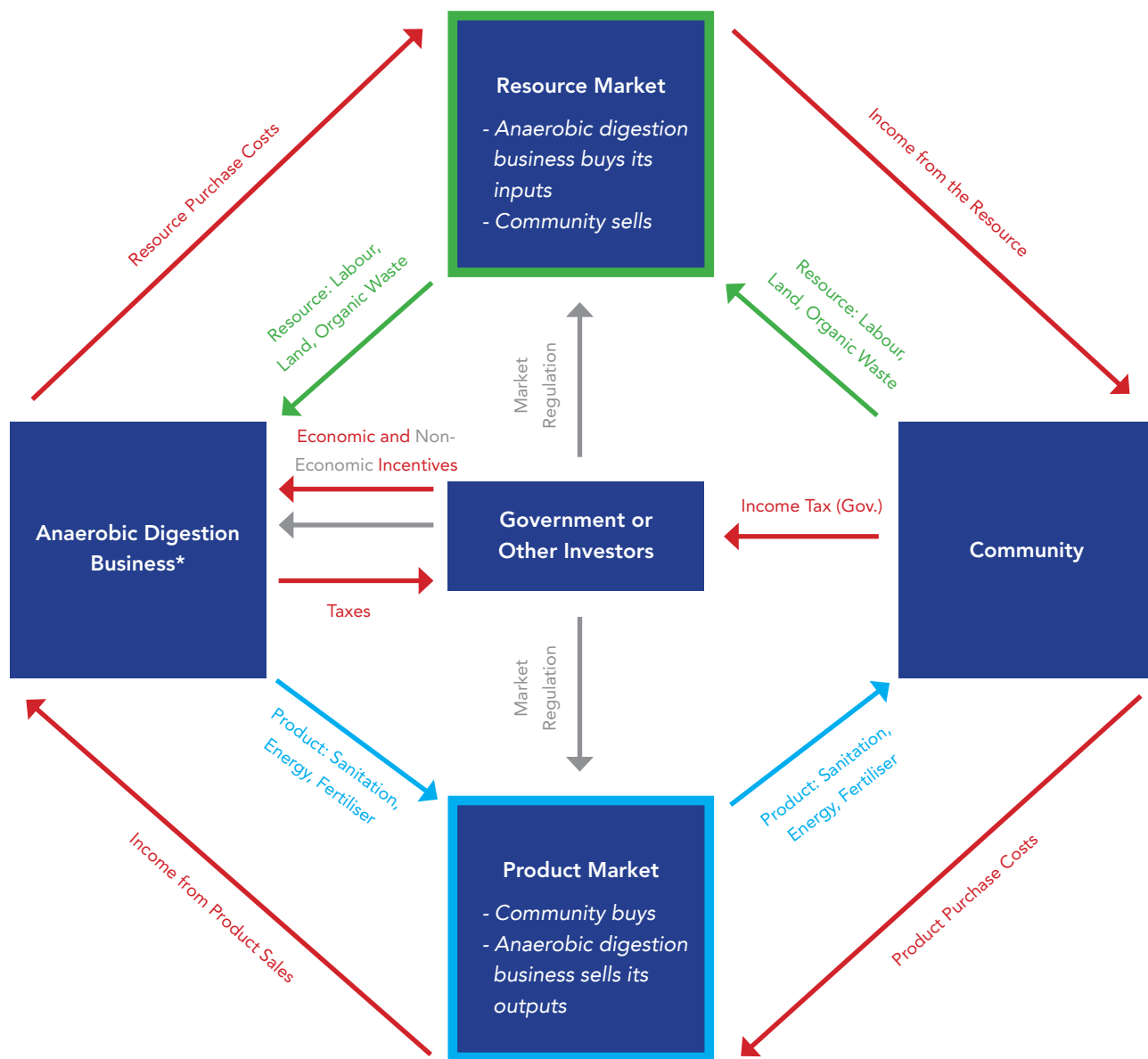
Many interrelations and dependencies exist between different actors within the ecotourism-sanitation nexus and can be represented through circular flow diagrams (following figures adapted from Mankiw, 2007). The circular flow diagram is a representation based on an exchange of products (goods and services) and resources between two actors (one economic entity providing the products and one economic entity providing resources). The categories used for such circular flow diagram representation do not rule out any overlap between the different actors but merely outline the different roles which they can adopt (as product or resource providers). Exchanges are represented as happening through two exchange markets: one for resources and one for products. Government influences over the actors or the exchange markets are represented in the form of regulations and taxes/subsidies. In the context of this report, actors are local communities and different types of businesses (i.e., small local and community-owned businesses).

Circular flow diagrams are directional and are read differently depending on which actors are considered as product provider versus resource provider. Monetary flows for exchanges of resources and products can be negotiated separately or together because of the interdependencies. The respective size of the monetary flows between resource and product purchases depends on the relative bargaining power between the two actors. The product provider, as the risk-taker, typically holds the most bargaining power for creation and development of economic activities. The clear identification of product and resource dependencies and their associated monetary flows can help better balance decision-making and bargaining power between different actors.

Figure 5 represents exchanges of products and resources between an anaerobic digestion business (which can be owned and run by the community) and the community⁴. The main gain to the community is linked to provision of sanitation and organic waste management by the anaerobic digestion business. For example, when the bargaining power lies with the anaerobic digestion business, it can negotiate the provision of sanitation, energy and fertiliser (products) at reduced cost to the community in exchange for free organic waste (no arrow for resource purchase monetary costs, Figure 5a). This is a form of 'community-subsidised sanitation'. When the bargaining power lies

4 Such exchanges of products and resources are assumed linked to exchange of monetary resources (financial transactions). Such market exchanges do not necessarily require currency exchange and can have a zero monetary value (bartering). Exchanges for 'free' still have an economic value, which is what the red arrows of the diagrams reflect, even if they do not materialise as actual monetary exchanges.

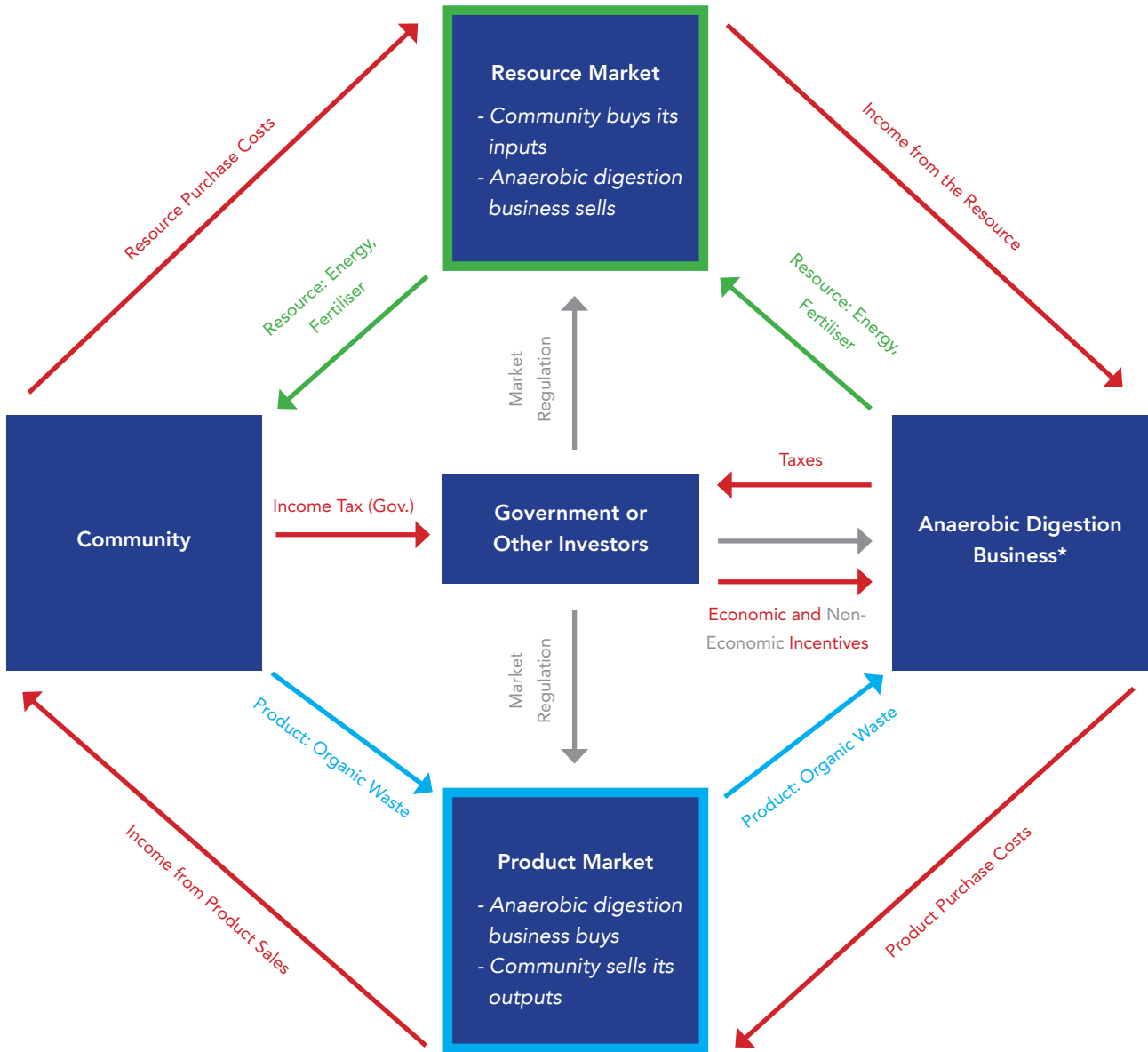
with the community, it can negotiate the provision of organic waste (product) at reduced purchase prices to the anaerobic digestion business in exchange for free fuel and fertiliser (no arrow for resource purchase monetary costs, Figure 5b). This is a form of 'business-subsidised organic waste provision'. An ideal win-win scenario would lie in-between.



5(a) Product Provider: Anaerobic Digestion Business; Resource Provider: Community

FIGURE 5: CIRCULAR FLOW MODEL OF PRODUCTS (BLUE ARROWS) AND PHYSICAL RESOURCES (GREEN ARROWS) AND MONETARY RESOURCES (RED ARROWS) EXCHANGED BETWEEN ANAEROBIC DIGESTION BUSINESS AND COMMUNITY.

* Privately or community-owned and run.



5(b) Product Provider: Community; Resource Provider: Anaerobic Digestion Business

In Figure 6, the anaerobic digestion business (product provider) sells sanitation and energy (products) to an ecolodge (a form of ecotourism business which could be owned by the community) through the product market while the ecolodge sells organic waste (resources) to the anaerobic digestion business. The anaerobic digestion business can provide fertiliser to an ecolodge with a kitchen garden or farm. Reversing the roles of the anaerobic digestion business and ecolodge in this case leads to a symmetrically identical diagram. Both are based on fairly new and economically risky activities and are likely to have the same bargaining power. Again, resources could be provided free of charge in exchange of reduced product purchase costs to the resource provider.

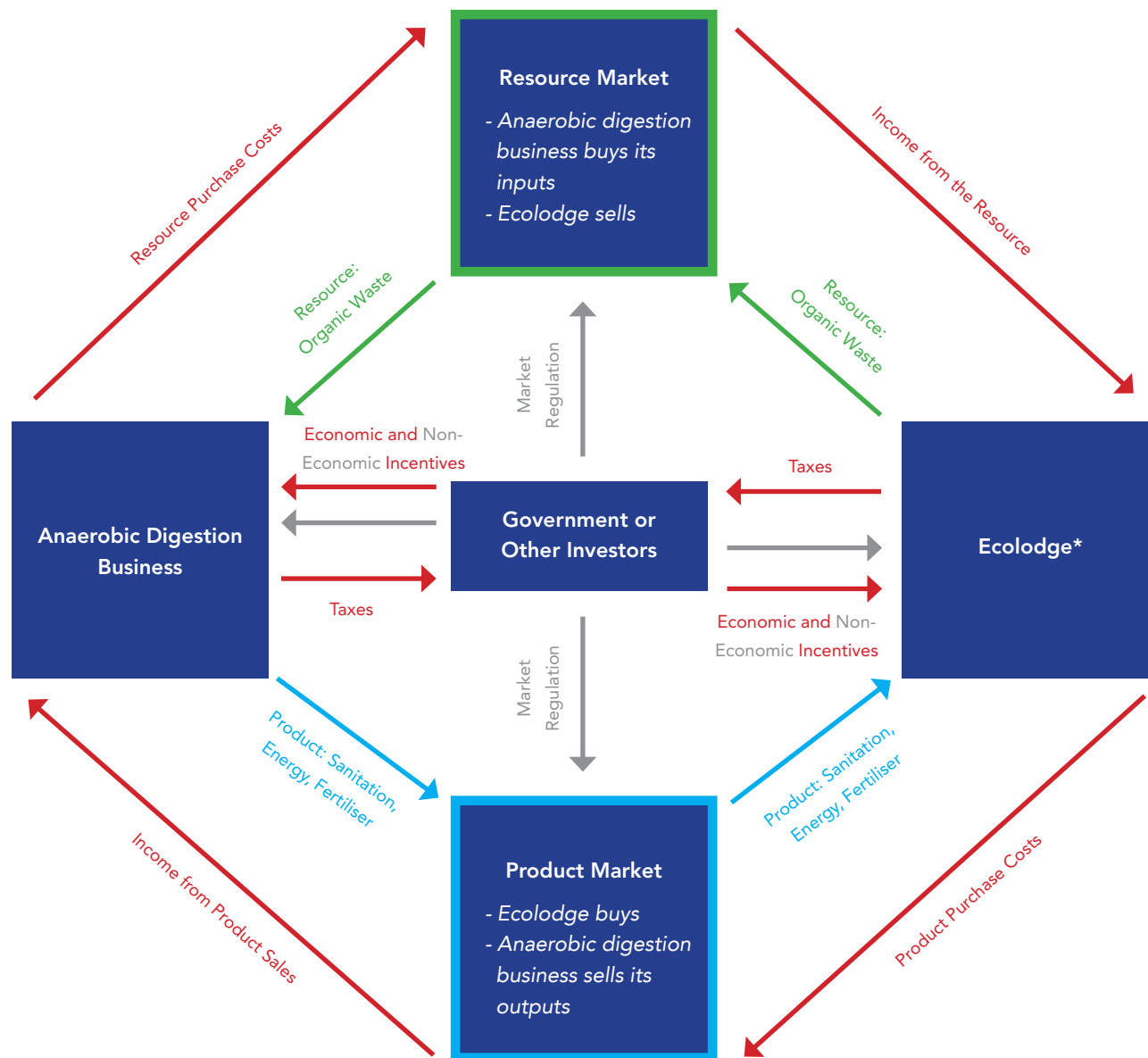
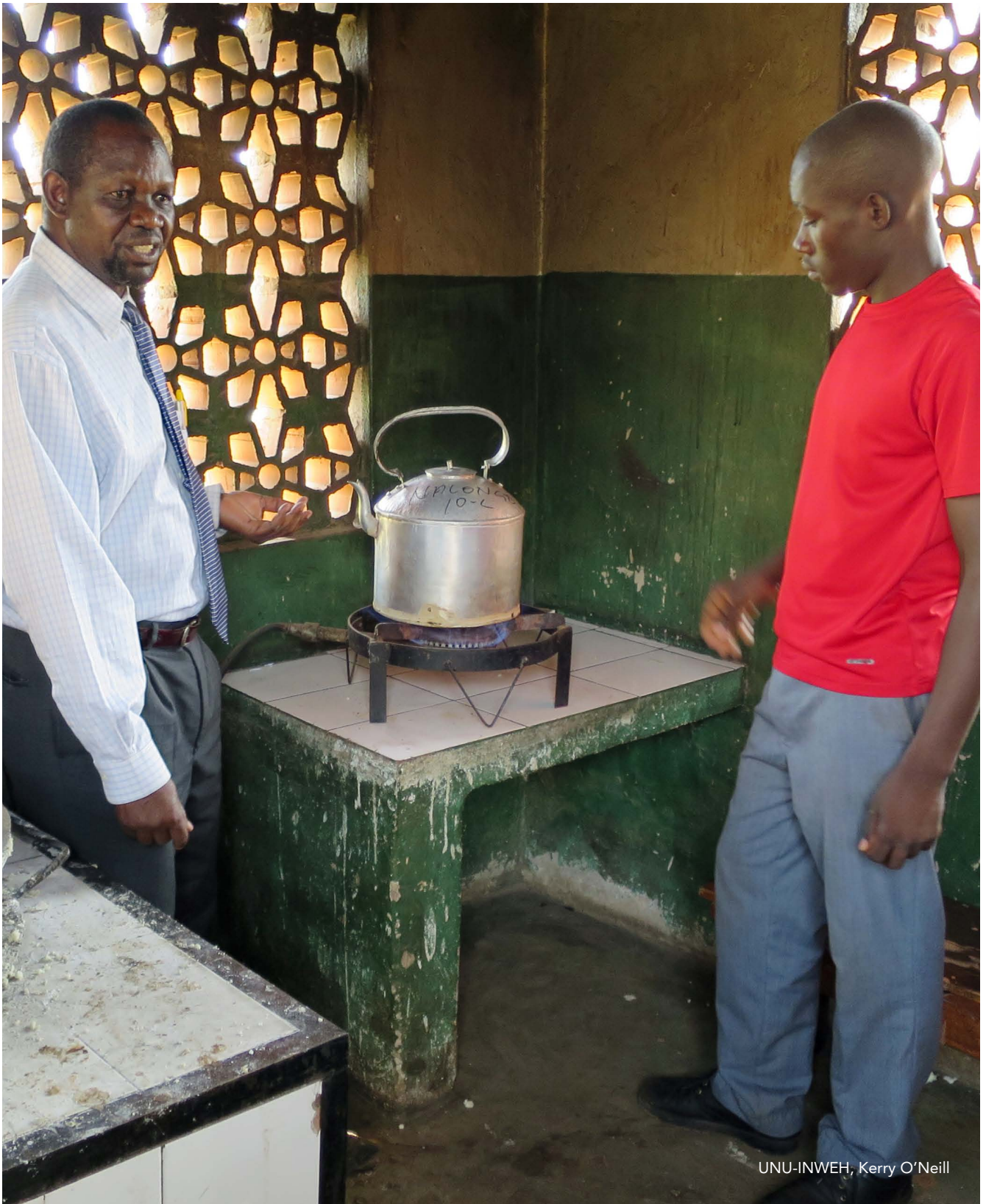


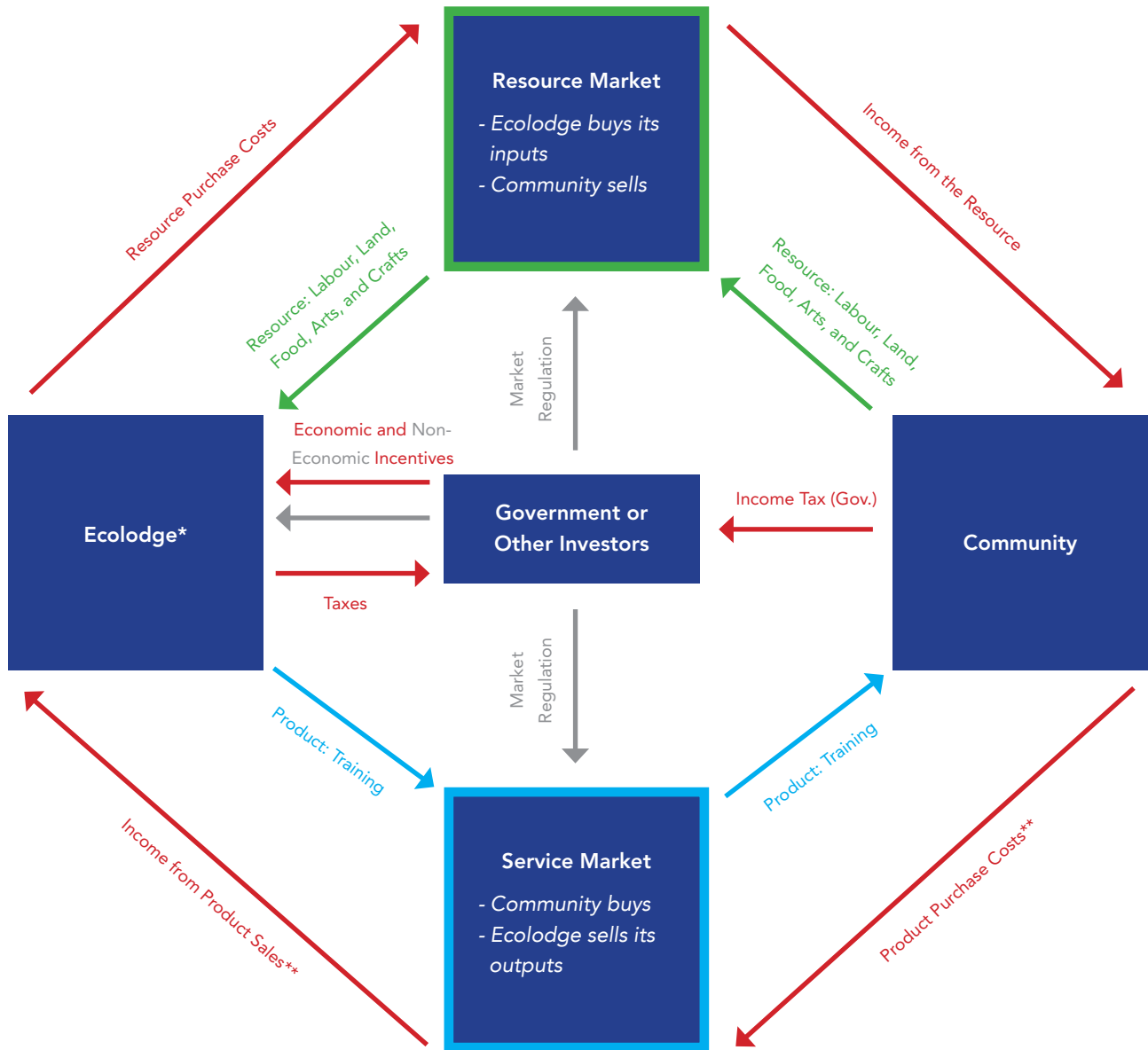
FIGURE 6: CIRCULAR FLOW MODEL OF PRODUCTS (BLUE ARROWS) AND PHYSICAL RESOURCES (GREEN ARROWS) AND MONETARY RESOURCES (RED ARROWS) EXCHANGED BETWEEN ANAEROBIC DIGESTION BUSINESS (PRODUCT PROVIDER) AND ECOLOGE (RESOURCE PROVIDER)

* Privately or community-owned and run.



UNU-INWEH, Kerry O'Neill

Figure 7 represents exchanges of products and resources between an ecolodge (privately or community-owned and run) and the community. The main gain to the community of having the ecolodge is the increased skill level for tourism service provision as well as the supply of financial resources following the demand for resources by



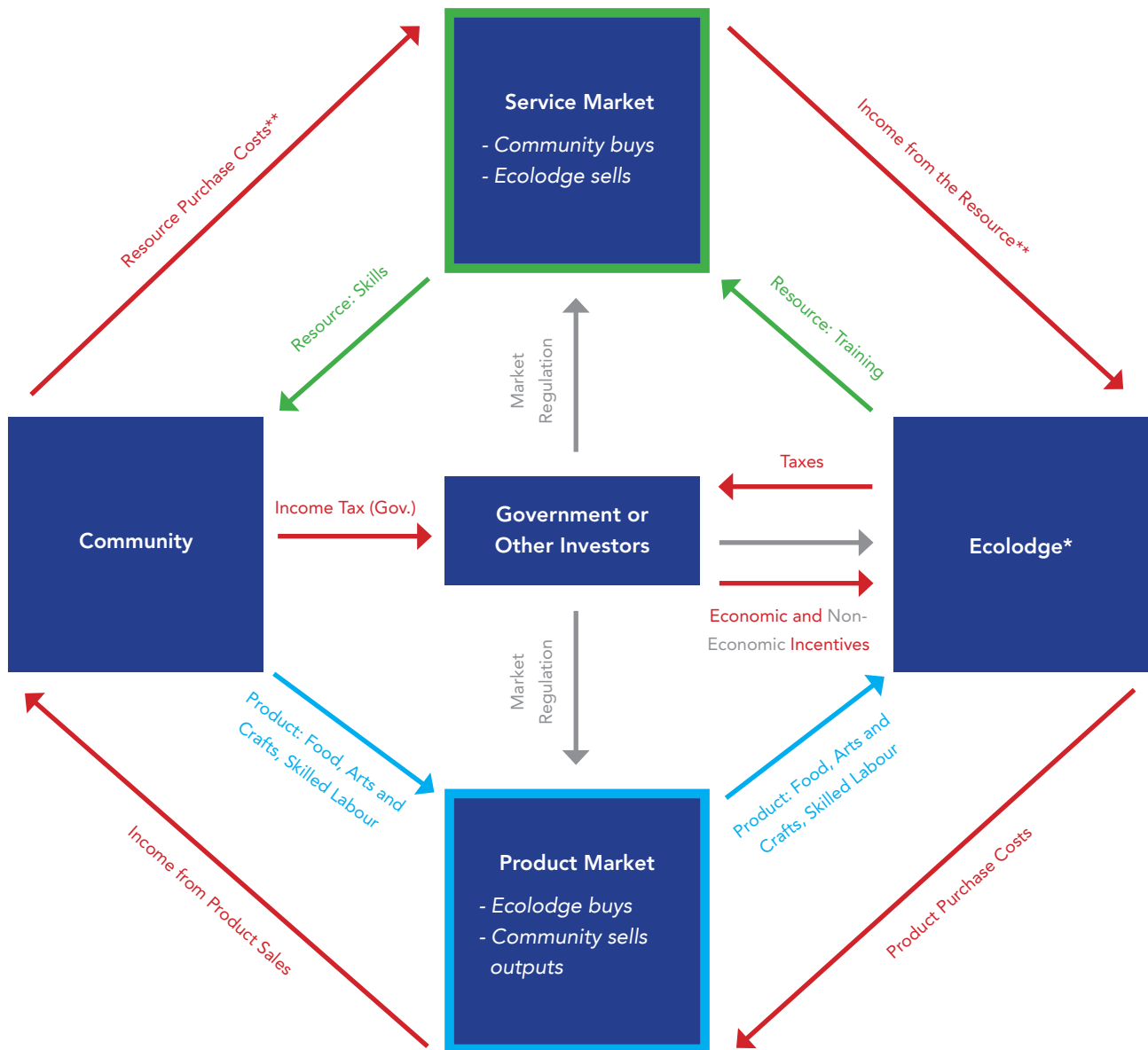
7(a) Product Provider: Anaerobic Digestion Business; Resource Provider: Community

FIGURE 7: CIRCULAR FLOW MODEL OF PRODUCTS (BLUE ARROWS) AND PHYSICAL RESOURCES (GREEN ARROWS) AND MONETARY RESOURCES (RED ARROWS) EXCHANGED BETWEEN THE ECOLOGE AND THE COMMUNITY.

* Privately or community-owned and run.

** Service market products could be paid for directly by the community, or indirectly (reduced wages or service quality premium charged to tourists).

the ecolodge. A win-win scenario would have provision of free training to the community to develop its tourism and hospitality skills for slightly reduced wages for employment of local community (Figure 5b)⁵.



7(b) Product Provider: Community Resource Provider: Ecolodge

5 Alternatively, training could be compensated for through a service quality premium paid for by tourists, rather than reduced wages for local community labour. This is detailed with the next figure (Figure 8).

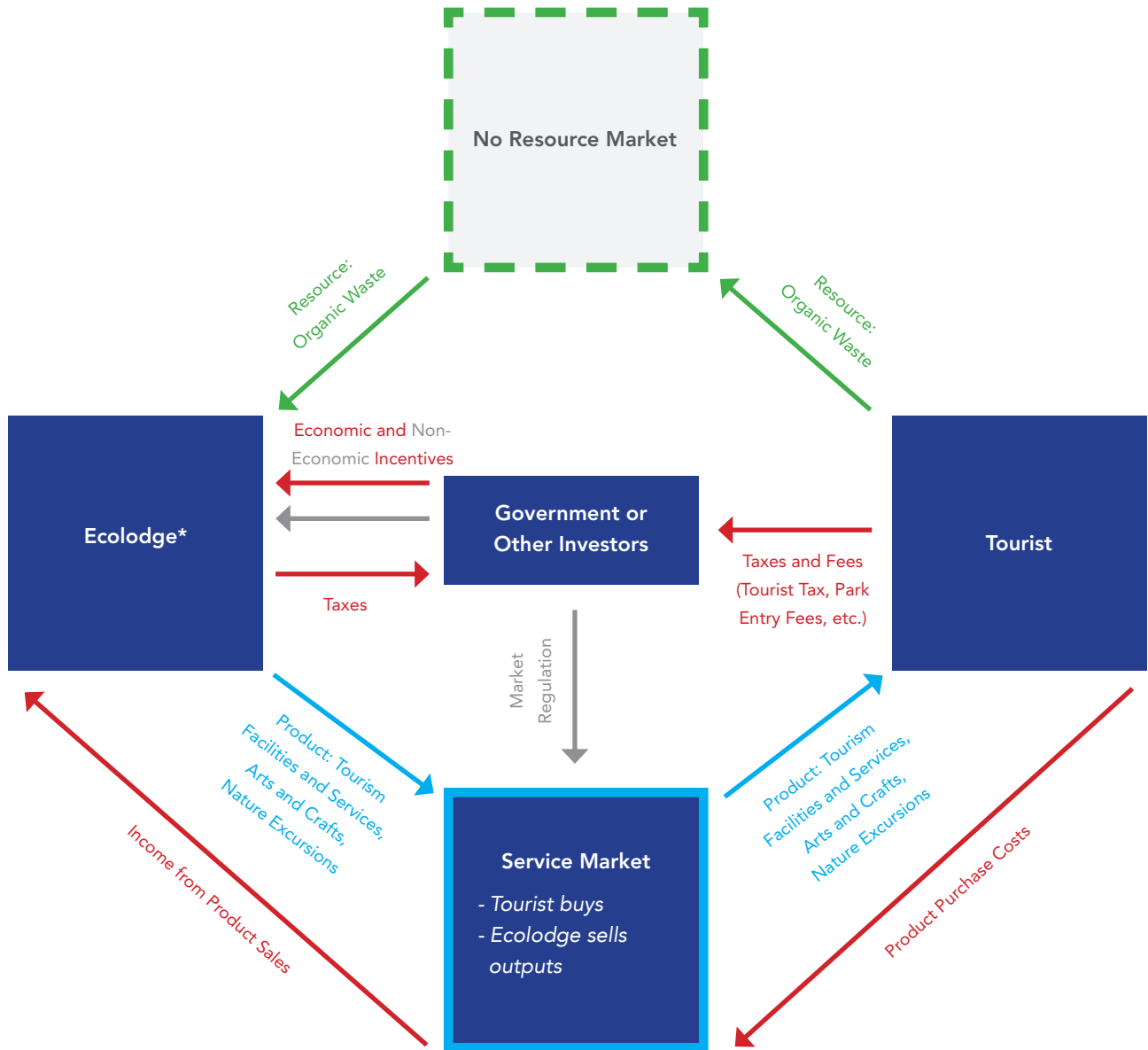


FIGURE 8: CIRCULAR FLOW MODEL OF PRODUCTS (BLUE ARROWS) AND PHYSICAL RESOURCES (GREEN ARROWS) AND MONETARY RESOURCES (RED ARROWS) EXCHANGED BETWEEN THE ECOLOGE AND ITS VISITING TOURISTS.

* Privately or community-owned and run.

** Service quality premium charged to tourists could be used by the ecolodge to fund its training activities for the community.

Figure 8 represents exchanges of products and resources between an ecolodge and its visiting tourists. These tourists can be from the community itself, other parts of the country, or foreign countries. The ecolodge provides traditional tourism facilities and services to its visiting tourists, such as accommodation and restaurants, with the addition of strong conservation and rural development aspects (local arts and crafts bought by the ecolodge from the community in Figure 7), training and employment of local community labour detailed in Figure 7, nature excursions, etc.) in exchange for local and international currencies. A service quality premium could be charged by the ecolodge to tourists to fund local community training (rather than through reduced wages for local community labour as detailed in Figure 7). Tourists generate organic waste (left over food or human waste) which goes back to the ecolodge free of charge. The ecolodge, however, needs to manage and dispose of this waste properly, which goes back to Figure 6. Moreover, the ecolodge has demands for energy and food. These demands can be met directly, such as the demand for lighting (biogas), or indirectly, such as the demand for food impacting demand for fertiliser and cooking fuel (solid or gas) through anaerobic digestion (Figure 6).

Combining the previous figures together, provides an overall schematic flow of identified products and resources exchanged between the anaerobic digestion business, the community, the ecolodge (ecotourism business) and visiting tourists (Figure 9). The combination shows which financial flows need to be negotiated between which actors. Resource and product flows can be negotiated separately or together, depending on the preferences of actors. The strong product, physical, and monetary resource interdependencies between the various actors of the ecotourism-sanitation nexus show potential for building up mutual benefits taking advantage of economies of scale (anaerobic digestion) and establishment of win-win scenarios (turning waste into wealth) overall and between each pair of actors.

The private sector is often seen as the engine of growth, no matter what economic status, and is an important mechanism for sustainable development (UNDP, 2007). However, private sector businesses can take very diverse forms, from international corporations down to small local businesses and community-owned businesses. This is the case for the sanitation-ecotourism (ecolodge) nexus described herein, which could be owned and run by the community itself.

The community ownership and control aspect is especially important for ecotourism to achieve its rural development objective (i.e. maximising the local economic and health benefits) as well as its conservation objective (Zanotti and Chernela, 2010). When businesses are community-owned and run, there should be more balanced bargaining power and greater incentive to find win-win scenarios for all parties for 'multiplied' benefits. Community-owned businesses create stronger incentive to harness tourist purchasing power (typically greater than that of the community) to fund the development of local (community-owned) businesses, for example through service quality premiums rather than through government subsidies or free community inputs. The actual benefits to the community (directly or through businesses it owns and runs) still depend on its bargaining power with respect to competitors external to the community, as well as the (re)partitioning of this bargaining power within the community⁶.

⁶ (Eco)tourist's bargaining power is relatively low while there is demand for (eco)tourism services, as they are actively willing to pay for such service in the first place.

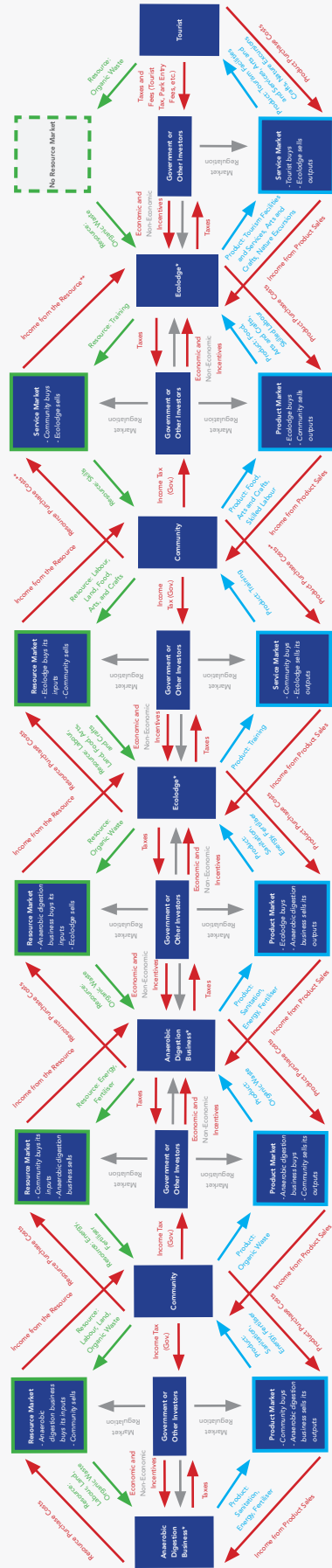


FIGURE 9: COMBINED CIRCULAR FLOW MODEL OF PRODUCTS (BLUE ARROWS) AND PHYSICAL RESOURCES (GREEN ARROWS) AND MONETARY RESOURCES (RED ARROWS).

* Privately or community-owned and run.

** Service quality premium charged to tourists could be used by the ecologue to fund its training activities for the community.

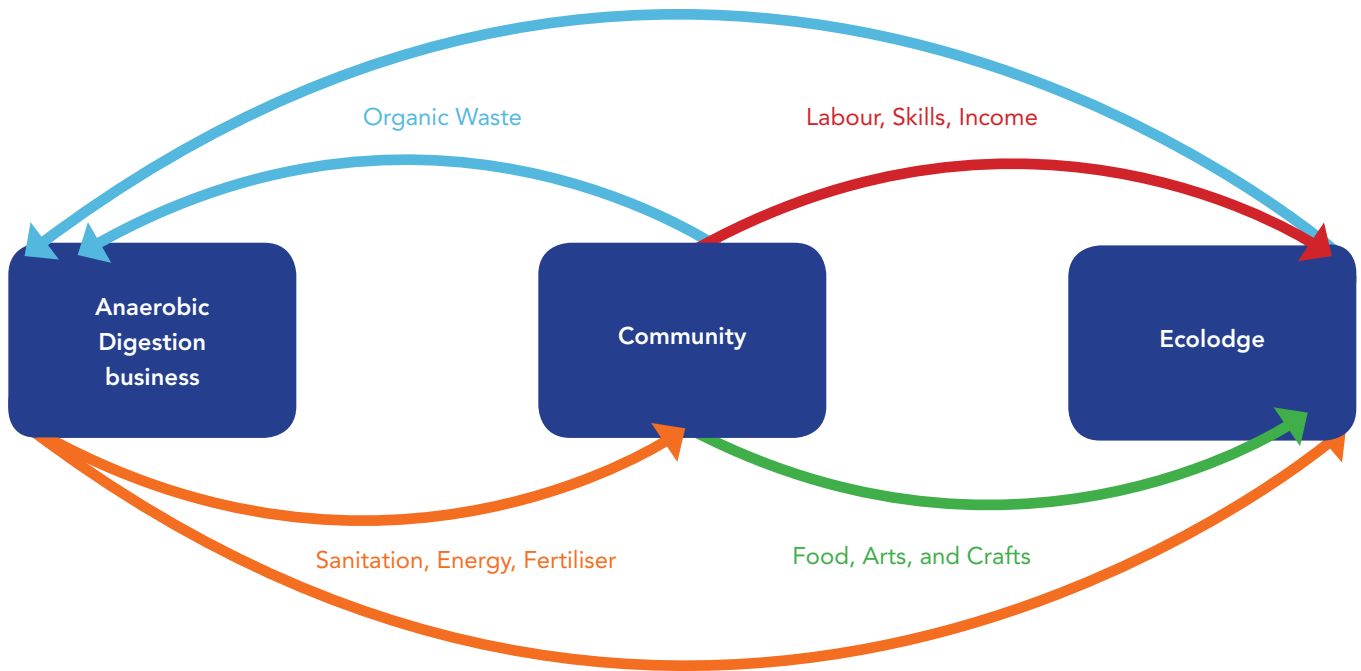


FIGURE 10: SUMMARY FLOW OF RESOURCES BETWEEN THE THREE MAIN STAKEHOLDERS (ANAEROBIC DIGESTION BUSINESS, COMMUNITY AND ECOLOGE).

Figure 10 presents a summary of the more complex inter-relationships articulated in Figure 9 in order to outline a potentially simple model that could be implemented easily, especially in a LMIC setting. Such a configuration could provide a baseline for establishing win-win scenarios and identifying suitable working financing options.



Protecting Lake Victoria
from Pollution.

Financing Community-Driven Ecotourism-Sanitation Nexus

In much the same way that resource flows can be harnessed at the sanitation-ecotourism nexus, the revenue-generating potential of human waste by-products through anaerobic digestion facilitates harnessing of small financial loans to finance capital and start-up costs. As demonstrated for drinking water infrastructure improvements in rural communities (Mengueze *et al.*, 2014), collective micro-financing for local investment can be a sustainable and beneficial solution for communities to raise capital for development initiatives that result in social, economic, environmental, and wellbeing improvements. Co-benefits and cross-investments mean that there can be significant value in *investing locally by locals for locals*.

Given the payback on community investment, this type of financing model can and should be underwritten by governments and other financial lending institutions or form the basis of innovative public-private-community partnerships. As such, even when governments are unable to afford sanitation scale up investments, progress can be made towards the realisation of the human right to sanitation, and by expansion, to other community social services including drinking water improvements. Moreover, community operation and ownership, even if part of the sanitation-ecotourism nexus described herein, can act as a mechanism for the (re)distribution of ecotourism benefits which currently tend to favour external stakeholders. Investment by locals for locals typically empowers the community to decide for itself, increasing its decision-making and bargaining powers compared to external stakeholders thanks to this investor status.



Conclusion

While improving sanitation access and coverage is known to be imperative to national development, incentivising and financing scale-up can be challenging. The application of the Waste to Wealth concept to the ecotourism-sanitation nexus creates an environment in which incentives move beyond simple capture of human waste for by-product value to a sustainable economic and social development model that operationalises locally-driven sustainable development while stewarding land resources. Distilled down to its basic elements, the model is built on community supply of fuel and fertiliser (food) to operate an ecotourism lodge in exchange for additional waste and revenue that can be invested in sanitation expansion and other social services.

It is innovative because it is sustainable; building a market model that promotes economic, social, and environmental development.

It is innovative because it merges a mature sector (tourism) with an immature sector (anaerobic digestion) to propel both forward while remaining true to the triple bottom line (people, economy, and environment).

It is innovative because it does not rely on long-term government or NGO assistance.

Finally, it is innovative because it is grassroots; promoting community development, not that of agency, government, or NGO.

Ultimately, the development and establishment of both these sectors can provide alternative livelihood options to rural communities for diversification of their activities, while promoting sanitation, rural development, and nature conservation.

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APPENDIX I: ACTORS RELATED TO THE ECOTOURISM SECTOR IN UGANDA

Ministry of Tourism, Wildlife and Antiquities

Uganda Tourism Board (UTB)

- » The primary means for government ecotourism promotion

Uganda Wildlife Authority (UWA)

- » A semi-autonomous government agency that conserves and manages Uganda's wildlife for the people of Uganda and the whole world

Presidential Initiative on Sustainable Tourism (PRESTO)

- » "It is time to take on the animal head-on and hit people in their faces" says Dhizaala, a project planner with the National Planning Authority (NPA) and a team member of Presto "Our benefits from the ministry of Tourism, [Wildlife and Heritage], UTB and all other stakeholders are below expectations."

The Hotel and Tourism Training Institute (HTTI)

- » A government owned training institution under the Ministry of Tourism, Wildlife and Antiquities
- » They offer Ecotourism sites safaris

Private Sector Foundation Unit

- » An organisation made up of 175 business associations, corporate bodies and the major public sector agencies that support private sector growth.
- » Serves as a focal point for private sector advocacy as well as capacity building and continues to sustain a positive dialogue with Government on behalf of the private sector.

Uganda Export Promotion Board (UEPB)

- » Published Uganda: Ecotourism Assessment (2006) with the Ministry of Tourism.
- » Promotes Bio-trade (goods and services derived from native biodiversity (genetic resources, species and ecosystems), under the criteria of environmental, social and economic sustainability)
- » UEPB views tourism as a bio-service that is part and parcel of the service industry in Uganda, hence the Board's support of the programme.

Ministry of Education and Sports (MES)

- » Developed a curriculum for tourism training at The Hotel and Tourism Training Institute (HTTI)

United Nations Conference on Trade and Development (UNCTAD)

- » Developed Ecotourism Assessment (2006) with the Ministry of Tourism

Uganda Community Tourism Association (UCOTA)

- » UCOTA was established in July 1998 to empower local communities in sustainable development through small-scale tourism and handcraft enterprises, also known as community tourism.
- » To date UCOTA has grown into 42 active member-groups countrywide, representing about 2,121 individuals of whom 64% are women. The groups operate small enterprises ranging from accommodation,

guiding services, and restaurants to craft shops and music, dance and drama performances. Most of the groups fund a community projects, such as clinics, schools, water sources and literacy programs.

- » Core activities
 - » **Capacity building:** UCOTA members are trained in various aspects of tourism development such as business skills, guiding, bird watching, hospitality, handcrafts, group dynamics, site management, and conservation of natural and cultural resources.
 - » **Marketing:** UCOTA members' tourism products and services become part of international marketing efforts through the Pearls of Uganda program
 - » **Advocacy:** UCOTA creates a platform for members' voices to be heard at all levels.
 - » **Networking:** UCOTA's network brings members, partners and stakeholders together for dialogue and allows members to join forces, giving all interested parties an opportunity to interact.
 - » **Conservation:** UCOTA emphasises conservation of natural and cultural resources communities utilise as tourism resources (attractions). Conservation is aimed at attaining sustainability of the projects and minimising negative environmental impact.
 - » **Resource mobilisation:** UCOTA engages in fundraising activities for both members and the organisation.

Pearls of Uganda

- » A marketing program of Uganda Community Tourism Association (UCOTA) made up of authentic cultural community attractions and experiences located throughout Uganda, after Winston Churchill described Uganda as the "Pearl of Africa".

Kibale Association for Rural and Environmental Development (KAFRED)

- » A registered community based organisation (CBO) with over 120 members, managed by a committee of seven people from the community.
- » Operates The Bigodi Wetlands Sanctuary, located in the Magombe wetland; a major ecotourism attraction in the Kibale Forest area.
- » KAFRED has hosted visits from other groups involved in developing community tourism, conservation, or development projects; their model of community participation and 18 years of experience have made the initiative a model for these processes. NGOs also approach KAFRED for training and advice, while replication work has been undertaken in the Rwenzori Mountains and Bwindi Forest areas. This has included developing village walks in nascent ecotourism sites, for instance. (Uganda Export Promotion Board, 2006b).

Uganda Tourism Association (UTA)

- » Umbrella organisation for the private sector, acting as a bridge between the private sector and the Ministry of Tourism, Wildlife & Antiquities.

Uganda Hotel Owners' Association (UHOA)

- » A trade and lobbying organisation that includes almost all of the nation's hotels, lodges and camps among its members.

Association of Uganda Tour Operators (AUTO)

- » Uganda's leading tourism trade association, representing the interests of the country's leading and experienced professional tour operators incorporating the:
 - » Board of Airlines Representatives in Uganda
 - » Hotel and Catering Association of Uganda
 - » Uganda Association of Travel Agents
 - » Uganda Association of Air Operators
 - » Uganda Association of Tourism Training Institutions

Uganda Safari Guide Association (USAGA)

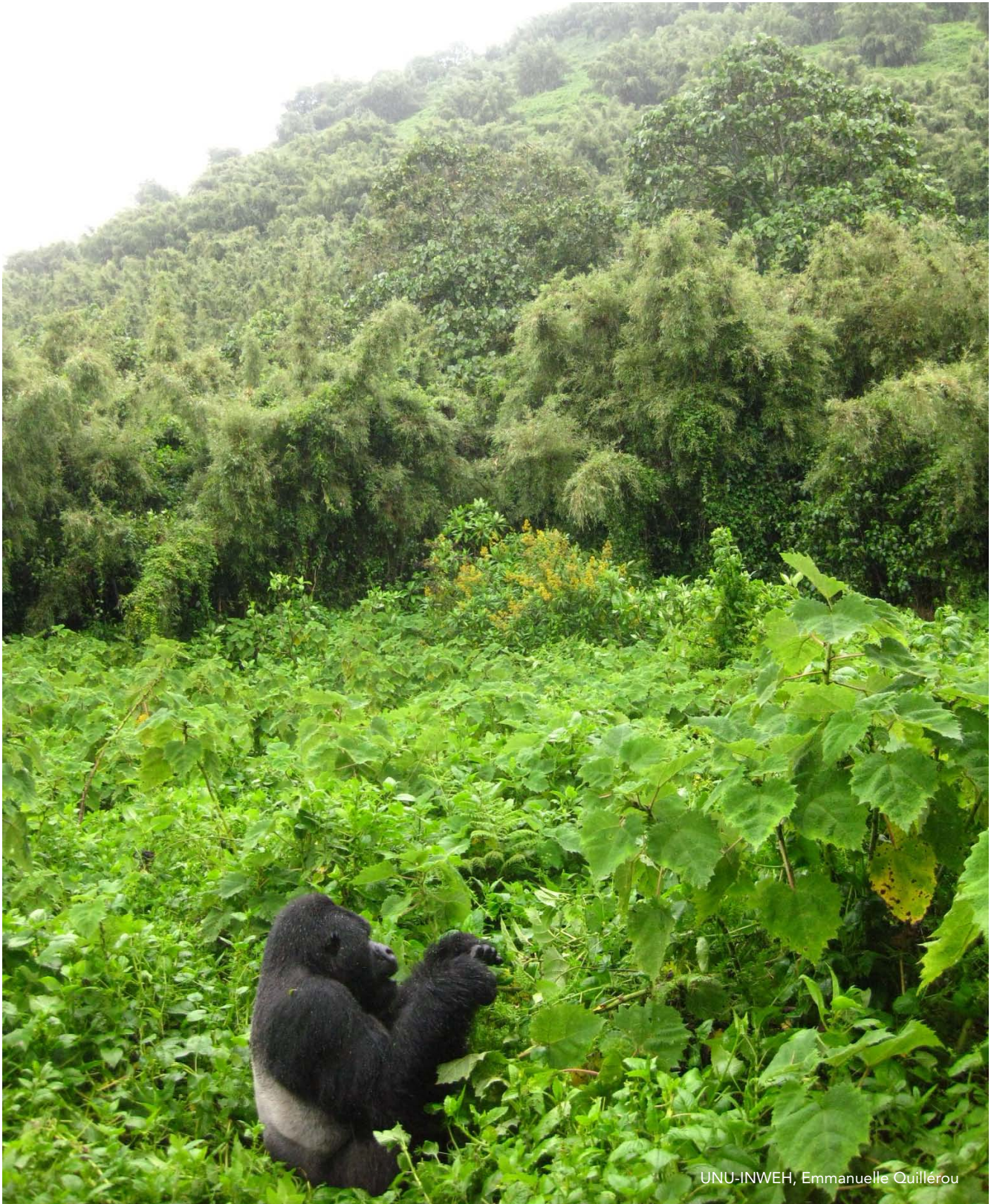
- » A professional association of trained and certified safari/field guides in Uganda.

Uganda District Tourism Associations (UDTA) (various upcountry locations)**Fauna & Flora International (FFI)**

- » Project support group, conserving threatened species and ecosystems worldwide in balance with human needs.

Nature Uganda

- » The leading membership-based conservation organisation in Uganda championing the protection of birds and their habitats.





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