



AN INVESTIGATION INTO THE BIOMASS POTENTIAL OF THE GPS ISLANDS

THESIS SUMMARY

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Thesis Summary

The World-Heritage Area of the Galápagos Islands with its unique natural resources and its pristine biological system implicates a special treatment in order to preserve this unique habitat.

In order to implement a sustainable energy system on the Galápagos-Islands it is fundamental to reconsider the existing energy supply system and to implicate all existing approaches applicable to the local conditions.

A possible approach, contributing to a completely renewable energy system, could be the generation of electricity based on biogas. Biogas represents an all-round and extraordinary interesting form of »green« energy generation featuring many additional positive aspects.

In the 'Zero-fossil fuel Initiative' of 2007 it is planned to cover one third of the electricity production by *Jatropha* (energy plant) by 2015. By now none of all the considered projects on the Islands has been implemented. The GPS Islands offer good conditions to implement bioenergy projects. The legal frame paved the way for sustainable power generating systems to be introduced. Therefore it is essential to implement a feasible plan in order to force the development of renewable energy generating systems. In order to design a feasible strategy to "get started" a possible approach should focus on the basics and aspects easy to implement in order to factor out all possibly appearing negative effects which could cause a further delay of the implementation of renewable energy projects on GPS.

A possible strategy for electricity generated based on biogas should be mainly based on domestic organic waste as main source for substrates in order to exclude (at least for a certain starting period) possible appearing problems. On the Galápagos Islands there are – dependent on the island – several sources of usable biomass. Next to the collected urban organic waste, including domestic and gastronomic remnants, and the collected green waste there are possible further sources occurring in the industrial and the agricultural sector as well as possible sources from landscape cleaning activities. The exact potential needs to be determined in several further studies. The table provided in

this study can deliver a frame of possible sources in order to detect the real potential of biomass sources applicable for energetic purposes. The example calculation provided in this thesis demonstrates that electricity production based on biogas (already simply based on organic waste) is generally possible but also that the current political frame needs to be reconsidered. The current feed-in tariffs for biogas electricity are too low and with regard to the political scope to support renewable energy generating systems based on the costs for the current fossil energy system there is a need and the feasibility for action. The political frame needs to be changed to a degree, highlighting the uniqueness of the world heritage area of Galápagos and making renewable energy production much more attractive.

Considering the aspects of an increasing energy demand, involved higher environmental pollution and associated increasing national cost, it is an undisputed truth that the challenges are rising – therefore the challenges had better get accepted today and not tomorrow.