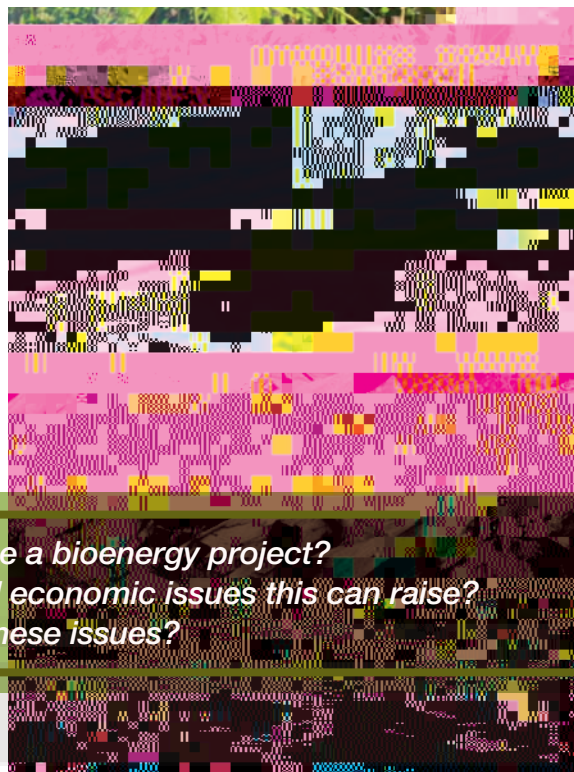
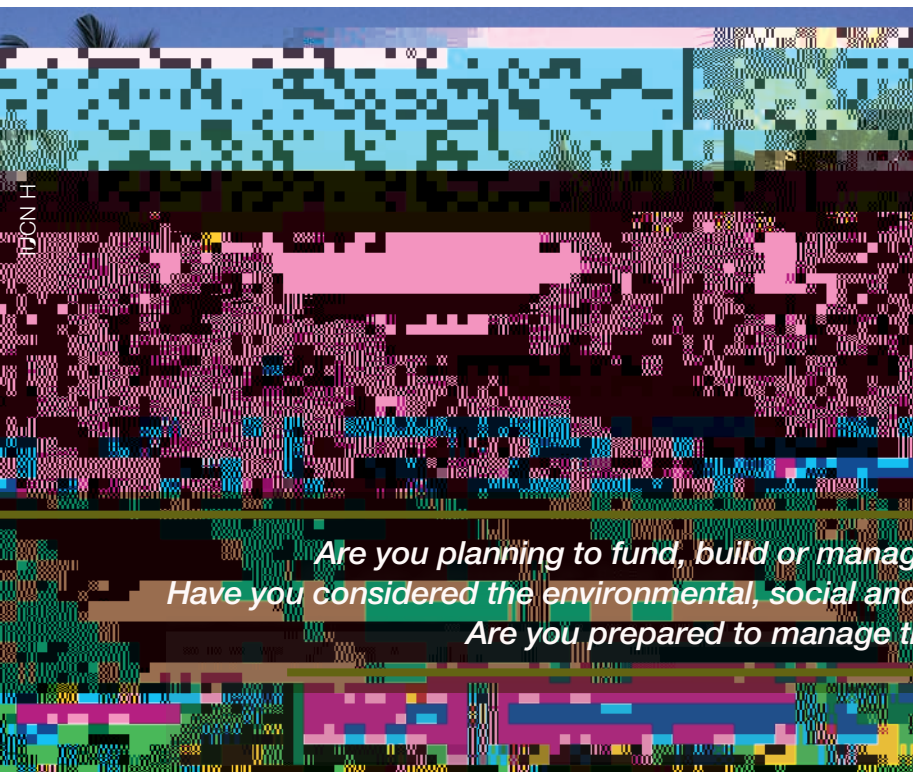




B

m

:lm



Are you planning to fund, build or manage a bioenergy project?  
Have you considered the environmental, social and economic issues this can raise?  
Are you prepared to manage these issues?

TYPICAL BIOENERGY PROJECTS

Natural materials can be used to produce energy, including animal manure, food waste, agricultural crops, and forestry residues. The generation of bioenergy can be divided into:

- **Biomass** - solid materials used to produce energy, including wood, agricultural crops, and forestry residues. Biomass can be used in a boiler, to produce electricity, or to produce heat in a combined cycle.
- **Biofuels** - these materials are processed to make liquid fuels such as alcohol and oil, which can be used in vehicles and generators.
- **Biogas** - these decomposed organic materials are used to produce gas, which can be used for cooking and lighting, or as a substitute for gas like LPG.

Bioenergy can be divided into:

**First generation:** energy produced from agricultural crops such as maize, wheat, and sugar cane, or from forestry residues. These are used to produce ethanol, which is used as a biofuel, or to produce biogas from fermentation.

**Second generation:** energy produced from inedible biomass, such as agricultural residues, wood, and forestry residues. These are used to produce ethanol, which is used as a biofuel, or to produce biogas from fermentation.

Basically, processed, fermented, and distilled ethanol is used as a biofuel for cooking, and alcohol is used for other purposes. However, the use of ethanol as a biofuel is still limited.

BIOENERGY PROJECT DEVELOPMENT

Planning

Bioenergy projects have complex implications for the environment. From choosing the site, selecting the technology, and processing, each stage of the lifecycle may have different environmental impacts and stakeholders. Therefore, the planning and management of bioenergy projects can be limited to the scale of commercial activities, while processing and generating electricity from biomass can be limited to industrial activities.

Decision-making needs to be informed by policies, such as land, water, oil, food, security and biodiversity.

## Environmental impacts

The demand for bioenergy can encourage conversion of ecosystems of land, introduction of species, deliberate and accidental and some irrigation and chemical use. The long-term demand of bioenergy consists of fossil fuel means in the energy market: a little of the global field of coconut plantation is needed to produce coconut oil to produce the same energy as a typical fossil fuel. Increasing the biomass by the combustion, sulfuric acid, methanol or other chemicals, can cause eutrophication and soil erosion and acid. All these can affect the ecosystem have to do bioenergy and other agriculture.

## Social impacts

Bioenergy build on the increasing agricultural land, which is self-sufficient energy. Unlike fossil fuels, bioenergy will need a balance of community each and can influence man can -5 7.1ic 2e 2e 3648 TMion.n(2e P648 T-80(o

## FOR FURTHER INFORMATION

The following are some of the information 'on the', which of the energy sector the energy sector of the stakeholders have been the information - the encourage of the lead of the. Information can generally be found in:

- X General, in the stakeholders (like the Roundtable on Sustainable Biofuel)
- Y Various applicable to bioenergy, from UN public policy to the OECD, IUCN compiled a reference document in 2008.
- Z In the global management organization (such as Food and Agriculture Organization International Energy Agency) has established the reference.
- [ Organization and industry (such as Sustainable Agriculture Network, Roundtable on Sustainable Palm Oil) have the general information on the energy sector of bioenergy, such as the energy sector, energy sector in the chain.
- ] At the same time, compliance with the relevant EIA and other legislation of the company is essential.
- Z For link and more detailed information, please visit IUCN website: <http://www.iucn.org>