Deutsches Biomasseforschungszentrum
gemeinnützige GmbH

DBFZ

Working Group: Biomass potentials and sustainability

Country profile

Saint Kitts and Nevis

GENERAL INFORMATION

Base Year………………………………… **MEDIAN 2008-2012**

Population………………………………… 54,000

Country area………………………………… 26,000 ha

Land area………………………………… 26,000 ha

Agricultural area………………………… 5,700 ha

    Arable land……………………… 4,500 ha

    Permanent crops……………… 100 ha

    Pastures and meadows……… 1,000 ha

Forest area………………………………… 11,000 ha

Fallow land………………………………… no data

Other land………………………………… 9,300 ha

Total primary energy
consumption (TPEC)………………… 4 PJ

Pie chart: Permanent crops 0%, Arable land 17%, Pastures and meadows 4%, Forest area 43%, Fallow land 0%, Other land 36%
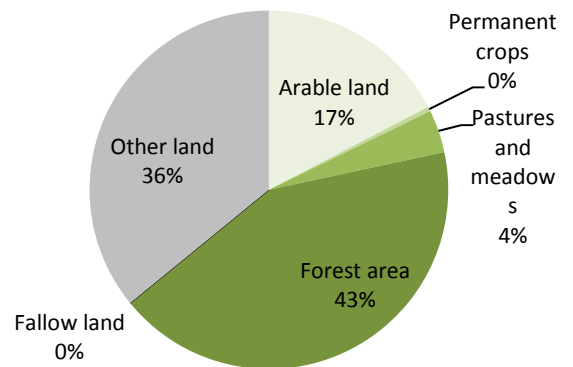
TOP 10 OF BIOMASS RESOURCES BASED ON AVAILABLE DATA

	BIOMASS RESOURCE	THEORETICAL POTENTIAL		TECHNICAL POTENTIAL	UTILIZATION total	free
	TOTAL	**0.17 PJ**	*0.02 PJ**	no data in PJ	no data	no data
1.	Cattle manure	0.07 PJ	-	no data in PJ	no data	no data
2.	Coconuts	0.03 PJ	-	no data in PJ	no data	no data
3.	Fruit, tropical fresh nes	0.03 PJ	-	no data in PJ	no data	no data
4.	Others	0.02 PJ	-	no data in PJ	no data	no data
5.	Coconut husk*	-	*0.01 PJ**	no data in PJ	no data	no data
6.	Pigs manure	0.01 PJ	-	no data in PJ	no data	no data
7.	Roots and tubers, nes	0.01 PJ	-	no data in PJ	no data	no data
8.	Coconut shell*	-	*0.01 PJ**	no data in PJ	no data	no data
9.	Vegetables, fresh nes	0.00 PJ	-	no data in PJ	no data	no data
10.	Pulses, nes	0.00 PJ	-	no data in PJ	no data	no data
	Remaining biomass	0.00 PJ	-	no data in PJ	no data	no data

* This biomass is part of an agricultural product and can not summed up. The share is shown seperately.

Bar chart legend:
- ■ TPEC
- ■ Technical potential
- ■ Theoretical potential
- ■ Current utilization

Petajoule (PJ)
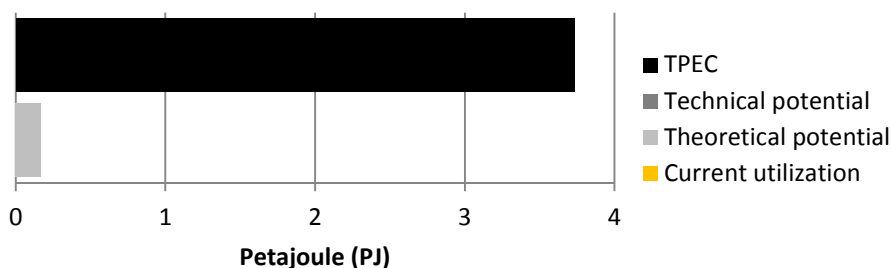
PJ	Liter Diesel
1	18.5 million
5	92.5 million
10	185.0 million
100	1850.2 million

Assumptions:
Lower Heating Value Diesel: 45,4 MJ/kg,
dense: 0,84 kg/m³

BIOMASS FROM AGRICULTURE

STATISTICS AND CALCULATIONS

TOP 5 of agricultural products from statistics

RANK	MAIN PRODUCT	AREA ha	PRODUCTION t	LHV MJ/kg	ENERGY PJ
	Total	**1,233**	**6,222**	-	**0.09**
1.	Coconuts	375	2,160	15.0	0.03
2.	Fruit, tropical fresh nes	256	1,760	15.0	0.03
3.	Roots and tubers, nes	200	500	15.0	0.01
4.	Vegetables, fresh nes	51	299	15.0	0.00
5.	Pulses, nes	202	228	15.0	0.00
	Others	149	1,276	15.0	0.02

Remarks: In case of no available data for energy content the assumption was set to 15 MJ/kg.


1. ■ 2. ■ 3. ■ 4. ■ 5. ■ Others
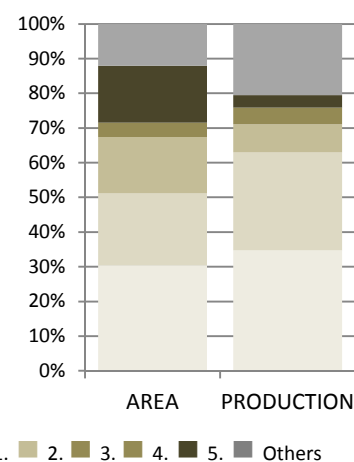
Residues related to the TOP 5 of agricultural products

MAIN PRODUCT	RELATED RESIDUE	CROP-RESIDUE-FACTOR	t	LHV MJ/kg	ENERGY PJ
1. Coconuts	Coconut husk	0.33	713	17	0.01
2. Coconuts	Coconut shell	0.15	324	19	0.01
3. Fruit, tropical fresh nes	no data	no data	no data	no data	no data
4. Roots and tubers, nes	no data	no data	no data	no data	no data
5. Vegetables, fresh nes	no data	no data	no data	no data	no data
6. Pulses, nes	no data	no data	no data	no data	no data

Coconut shell (31%)

Coconut husk (69%)
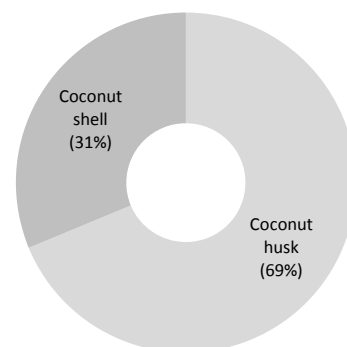
TOP 5 of animal manure

RANK	LIVESTOCK	HEADS in 1,000	LU in 1.000	Calculation t_{manure}/Head	t_{manure}	LHV PJ/t	PJ
	Total	**109**	**11**	-	**119,100**	-	**0.076**
1.	Chickens	80	0	0.0125	1,000	1.155	0.001
2.	Goats	9	1	no data	no data	no data	no data
3.	Sheep	7	1	no data	no data	no data	no data
4.	Cattle	7	7	14.8	99,900	0.671	0.067
5.	Pigs	7	2	2.8	18,200	0.439	0.008
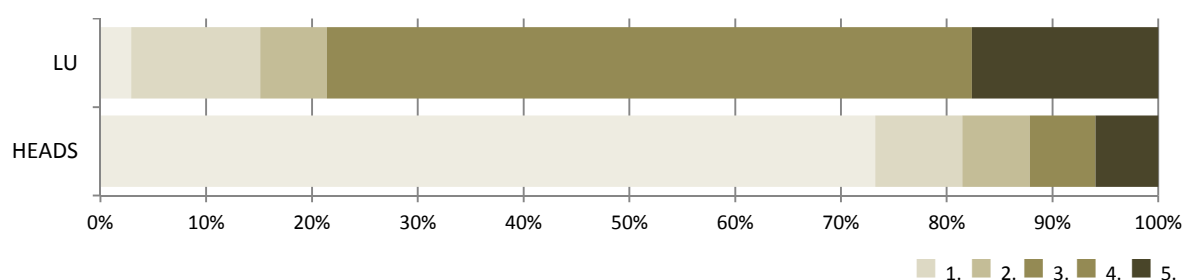
1. ■ 2. ■ 3. ■ 4. ■ 5. ■

BIOMASS FROM AGRICULTURE

Source	Biomass	Regional level	Description	Time frame	Theoretical biomass potential		Technical biomass potential		Utilization	
					Value	Unit	Value	Unit	used %	free %
no data										

Lit: literature, Prim: Primary data from surveys

BIOMASS FROM FORESTRY

Source	Biomass	Regional level	Description	Time frame	Theoretical biomass potential		Technical biomass potential		Utilization	
					Value	Unit	Value	Unit	used %	free %
no data										

Lit: literature, Prim: Primary data from surveys

BIOMASS FROM WASTE AND OTHER RESIDUES

Source	Biomass	Regional level	Description	Time frame	Theoretical biomass potential		Technical biomass potential		Utilization	
					Value	Unit	Value	Unit	used %	free %
Lit	Municipal solid waste	National	no data	2000	26,460	t	no data	no data	no data	no data
Lit	Food waste (from MSW)	National	no data	2000	12,410	t	no data	no data	no data	no data
Lit	Food waste (from MSW)	National	no data	2000	22	TJ	no data	no data	no data	no data

Lit: literature, Prim: Primary data from surveys

PREFERENCE REGIONS, NEXT STEPS AND DEFINITIONS

TOP 5 PREFERENCE REGIONS

1. no data
2. no data
3. no data
4. no data
5. no data

TOP 5 NEXT STEPS FOR RESEARCH

1. Harmonize literature data with statistical data to find a comparable basis.
2. Identify the technical potential of the most important biomass resource(s).
3. Find specific locations for an utilization.
4. Find sustainable concepts for biomass supply.
5. Ensure the sustainable distribution of power and heat.

DEFINITIONS

Arable land	Capable of being ploughed and used to grow crops.
Permanent crops	Cultivable land that is not being used for annually-harvested crops.
Theoretical biomass potential	Means the maximum without any regard to other demands like food, fodder or material use. This information gives a very first overview about available data regarding the amount of biomass that exists in the selected country.
Technical biomass potential	Includes all relevant restriction and competing uses. But, the calculations in literature (if available) often take only some of the restrictions into account. Also different time horizons and geographical coverage can cause huge inconsistencies. Consequently, various results can exist for the same resource.

CONTACT

ACKNOWLEDGEMENT
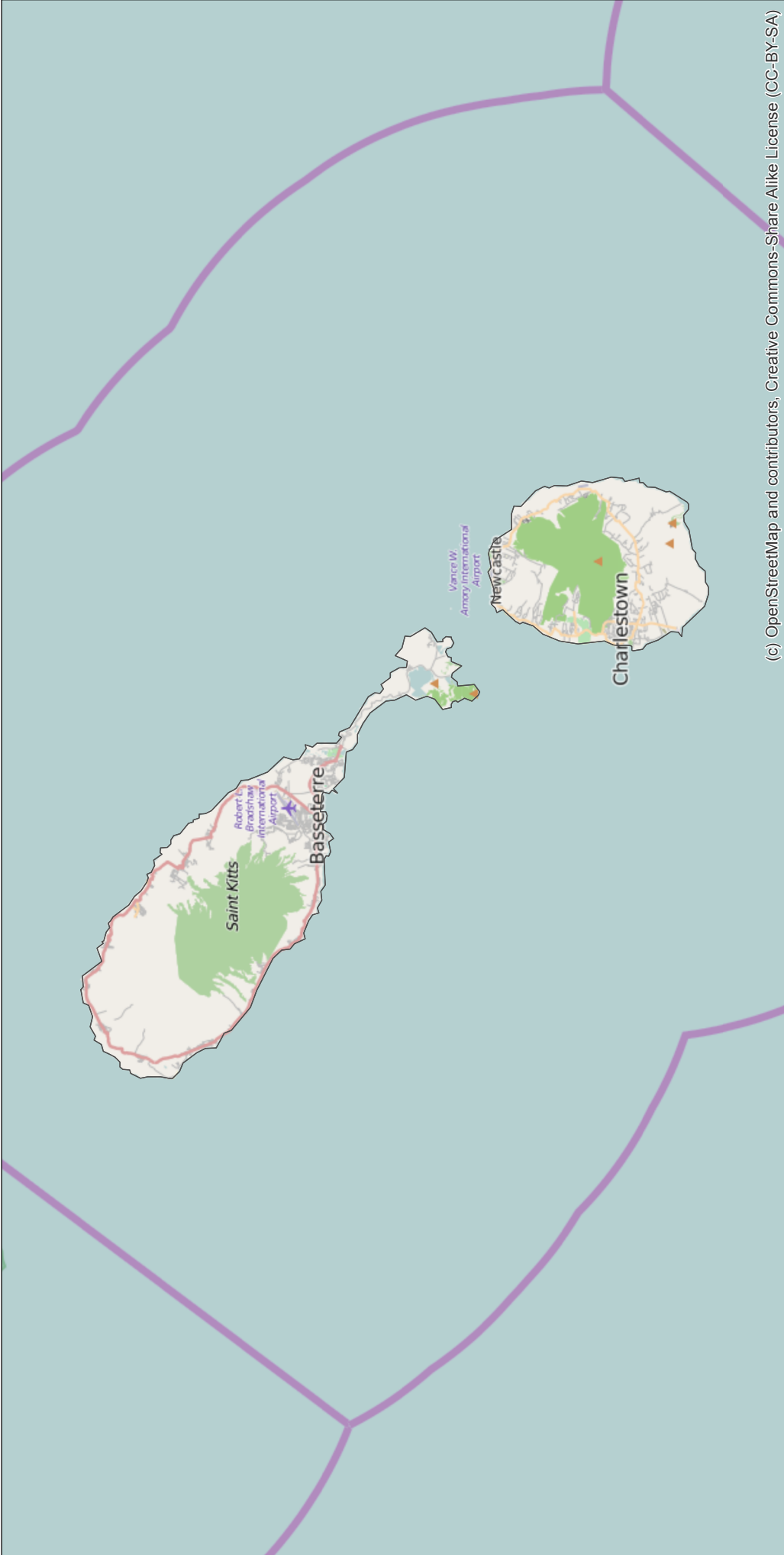
Saint Kitts and Nevis

☆ Brewery
★ Juice Production
★ Rum Distillery
✳ Sugarcane Factory

◆ Farmer
◢ Landfill
✳ Sawmill
◼ Landfill/Transfer Station

0   10   20   40
Kilometers

July 2015

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DATA DESCRIPTION

DATA DESCRIPTION AND REFERENCES

The "Country Profile" is a very first and quick option to get an overview about the available information on biomass resources in the selected country. The results are based on statistics, literature , surveys and calculations made by DBFZ/Germany. **Because of insufficient data the results have to interpreted with the awareness of uncertainties! The compilation has not the claim of completeness!**

PAGE 1

Page 1 contains general information on population, land use and total primary energy consumption (TPEC) as well as a summary about the most important biomass resources. Furthermore, page 1 presents a chart with the share of energy content of the compiled data compared to the TPEC.

Page 2

Page 2 shows the TOP 5 results for agricultural products, its related residues and results for animal manure as well. The data on this page is based on official FAO-Statistics and calculations/conversions made by DBFZ.

Page 3

Page 3 is focused on additional data from literature and primary data collection. Results are presented with the most relevant level of information. The tables contain a specific identification of the biomass that is also categorized into "Biomass from agriculture", "Biomass from forestry" and "Waste and other residues", the regional level (e.g. national, regional, local), a description (if necessary) and the underlying time frame. The results for theoretical and/or technical potential are shown in units that were mentioned in literature. Mainly, the authors describe the compiled potentials in different units. Relevant information (e.g. specific factors for mass, volumina, energy content etc.) for a objectively consideration is often missing. This circumstance makes it difficult to find a common level for a comparison. In context of these "Country profiles" the data from literature and survey is only listed but not processed. Please contact the DBFZ for further information.

PAGE 4

Page 4 contains qualitativ information for TOP 5 "Preference regions", TOP 5 "Next steps for research". These information present options for the discussion about an efficient development of biomass resources.

PAGE 5

On page 5 a thematic map presents an overview about the selected country. In conjunction with basic information (open street maps) also collected primary data is included. Because of a better handling the spatial information is referenced as a number. Please check country profile's annex for further description. In case of aggregated regions please contact DBFZ.

REFERENCES

General information (page 1), biomass from agriculture (page 2) and factors for residues and/or energy content

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Country-specific sources from literature and surveys (page 3)

LITERATURE: no data | SURVEYS: no data

SPATIAL REFERENCES

Number	Name	Description	Type of biomass	Amount

no data