



Sandra Maria Guimaraes Callado (Autor)

Environmental Sustainability Analysis of Cashew Systems in North-east Brazil

Sandra Maria Guimarães Callado

**Environmental Sustainability Analysis
of Cashew Systems in
North-east Brazil**



Cuvillier Verlag Göttingen
Internationaler wissenschaftlicher Fachverlag

<https://cuvillier.de/de/shop/publications/1170>

Copyright:

Cuvillier Verlag, Inhaberin Annette Jentzsch-Cuvillier, Nonnenstieg 8, 37075 Göttingen,
Germany

Telefon: +49 (0)551 54724-0, E-Mail: info@cuvillier.de, Website: <https://cuvillier.de>

TABLE OF CONTENTS

TABLE OF CONTENTS	IV
LIST OF TABLES	V
LIST OF FIGURES	VI
LIST OF APPENDIXES	VII
LIST OF ABBREVIATIONS.....	VIII
ACKNOWLEDGMENTS	XI
1 INTRODUCTION	1
2 LITERATURE REVIEW.....	4
2.1 Agro-ecological zones of Brazil.....	4
2.2 Agricultural structure in Brazil	7
2.3 North-east Brazil	10
2.4 Farming systems in North-east Brazil.....	12
2.5 Cashew production in North-east Brazil	14
2.6 Cashew cropping.....	16
2.6.1 Phenology of cashew plant.....	16
2.6.2 Ecological adaptation	18
2.6.3 Crop management.....	19
2.7 Biomass related descriptors of farming systems.....	20
2.8 Energy descriptors of farming systems	21
2.9 Emergy analysis of farming systems.....	22
3 MATERIALS AND METHODS	24
3.1 Data collection	24
3.2 Study area.....	24
3.3 Rapid appraisal of cashew based farming systems through interviews	27
3.3.1 Determining parameters and structure of the cashew system	27
3.3.2 Energy and emergy analyses	29
3.4 Statistical methods – logit analysis	31
4 ANALYSIS OF CASHEW SYSTEMS IN NORTH-EAST BRAZIL.....	32
4.1 General characteristics of the studied cashew systems in Ceará and Piauí.....	32
4.2 Effects of different factors on the sustainability of cashew farming systems.....	40
4.3 Identifying cashew systems in North-east Brazil.....	46
4.4 Summary and conclusions.....	50
5 BIOMASS AND LITTER FALL IN MAJOR CASHEW FARMING SYSTEMS	52
5.1 Structure and parameters of cashew trees	52
5.2 Total litter fall and its components.....	55
5.3 Biomass and energy in cashew systems.....	60
5.4 Summary and conclusions.....	62
6 ENERGY EVALUATION OF CASHEW FARMING SYSTEMS	64
6.1 Comparing emergy inputs of types of cashew trees in Ceará and Piauí	65
6.2 Emergy comparison between different cashew systems.....	72
6.3 Summary and conclusions.....	75
7 GENERAL CONCLUSIONS AND RECOMMENDATIONS	77
7.1 Conclusions	78
7.2 Recommendations	79
8 REFERENCES.....	80
9 APPENDIXES	94