

Proposals of topics of dissertation theses for academic year 2018/2019

Study Programme: Sustainable Rural Development in the Tropics and Subtropics

Department:	Department of Sustainable Technologies
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1. doc. Ing. Jan Banout, Ph.D.

Toxicological assessment of selected pollutants accumulated in aquatic vegetables grown in peri-urban wetlands

2. doc. Ing. Jan Banout, Ph.D. | Ing. Helga Hernandez PhD.

Influence of drying pre-treatments on final organoleptic and physical properties of dehydrated products

3. doc. Ing. Jan Banout, Ph.D. | Ing. Jana Mazancová, PhD

Regional differentiation of small-scale biogas technology development, related driving factors and future prospects in rural areas of Southeast Asia

4. doc. Ing. Jan Banout, Ph.D. | Ing. Jana Mazancová, PhD

Social and economic assessment of small-scale biogas plants in developing world: A case of chosen country

5. doc. Ing. Jan Banout, Ph.D. | Ing. Jana Mazancová, PhD

Assessment of different designs of small-scale biogas plants in Southeast Asia

6. doc. Ing. Jan Banout, Ph.D. | Ing. Jana Mazancová, PhD

Small-scale biogas plants and their environmental impacts reduction

7. prof. RNDr. Irena Valterová, CSc. | Ing. Klára Urbanová, Ph.D.

Monitoring volatile compounds and fatty acid composition of tropical oils under different storage condition

8. Doc. Ing. Vladimír Krepl, CSc. | Ing. Tatiana Ivanova, Ph.D.

Optimization of the production processes of solid biofuels in selected developing country with a focus on technological lines solutions

9. Doc. Ing. Vladimír Krepl, CSc. | Ing. Petr Hutla, CSc.

The study of a biochar application as a raw material for solid biofuel production in a form of pellets and briquettes

10. Doc. Ing. Vladimír Krepl, CSc. | Ing. Jiří Sobek, Ph.D. (ČSAV), Ing. Petr Hutla, CSc. (VUZT)

Treatment of organic waste from palm trees by chemical process and pyrolysis process

11. Doc. Ing. Vladimír Krepl, CSc. | Ing. Pavel Burian, Ph.D.

Rehabilitation of postharvest technology in Ethiopia – focused towards Grain milling and Edible oil processing

12. Doc. Ing. Vladimír Krepl, CSc. | Ing. Pavel Burian, Ph.D.

Energy production from cottonseed oil processing waste in the Eastern Ethiopia

13. Doc. Ing. Vladimír Krepl, CSc. | Ing. Petr Hutla, CSc.

Production of Bio – Ethanol from Iraqi sugar cane Molasses and Evaluation of its Potential (Renewable Sources of Energy)

Department:	Department of Economics and Development
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1. prof. dr. ir. Patrick Van Damme | Ing. Vladimír Verner, Ph.D. | dr. ir. Wouter Vanhove
Promoting value-chains of neglected and underutilised species: Biodiversity, Markets, Living standard

2. Dr. sc. habil., Dr. sc. agr., Ing. Miroslava Bavorová | Ing. Vladimír Verner, Ph.D.
Role of traditional farming systems, agricultural practices and technology innovations on livelihood of rural and/or less developed regions worldwide

3. Dr. sc. habil., Dr. sc. agr., Ing. Miroslava Bavorová | Ing. Petra Chaloupková Ph.D. | Ing. Vladimír Verner, Ph.D.
Consumer behaviour and household preferences towards tropical products: Lessons learnt from developed and developing regions

4. Dr. sc. habil., Dr. sc. agr., Ing. Miroslava Bavorová | Ing. Petra Chaloupková
The lack of young labour in agriculture: the case of the Ukraine

5. Dr. sc. habil., Dr. sc. agr., Ing. Miroslava Bavorová | Ing. Jiří Hejkrlík, Ph.D.
Application of Integrative Impact Assessment Framework for impact analysis of Fairtrade value chain certification and horizontal integration of cashew farmers in the coastal region of Kenya

6. Dr. sc. habil., Dr. sc. agr., Ing. Miroslava Bavorová | Ing. Jana Mazancová, PhD
Assessing personality trait, cultural practices and moral principles as tools for improving natural resource management practices in Nigeria

7. Dr. sc. habil., Dr. sc. agr., Ing. Miroslava Bavorová | Ing. Jana Mazancová, PhD
Evaluating Priorities on Socio-Economic Vs Environmental Development: A Comparative Assessment amongst Different Echelons of Youths in Nigeria

8. Dr. sc. habil., Dr. sc. agr., Ing. Miroslava Bavorová | Ing. Jana Mazancová, PhD
Rural Women and Youth Empowerment through Agri-cooperatives in Selected Countries

Department:	Department of Sustainable Technologies
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1. Topic:	Toxicological assessment of selected pollutants accumulated in aquatic vegetables grown in peri-urban wetlands
Field of study:	Sustainable Rural Development in the Tropics and Subtropics
Supervisor:	doc. Ing. Jan Banout, Ph.D.
Supervisor-consultant:	
Prospective funding:	Internal grant agency, Czech development cooperation project
Annotation: (150-200 words recommended)	Aquatic vegetables such as Water spinach (<i>Ipomoea aquatica</i>), Water Mimosa (<i>Neptunia oleracea</i>), Cambodian mint (<i>Polygonum odoratum</i>) and others are intensively cultivated especially in South-East Asia. In this region they are important part of human diet. The same situation is in Cambodia. The numerous plots located around wetlands in peri-urban Phnom Penh, are important sources of edible aquatic vegetables for the city and other areas of Cambodia. Farmers in several wetlands near Phnom Penh make a good living by growing vegetables and selling them in local markets for human consumption. These vegetables, however, pose serious health hazards to consumers, since they are grown using wastewater, much of it polluted with heavy metals from industries as well as additional fertilizers and pesticides are also heavily applied. A cross-sectional study of pesticide handling practices and self-perceived symptoms of acute pesticide poisoning was conducted using questionnaire-based interviews with 89 pesticide sprayers in Boeung Cheung Ek (BCE) Lake, Phnom Penh, Cambodia. The study showed that 50% of the pesticides used belonged to WHO class I + II and personal protection among the farmers were inadequate (Jensen et al., 2011). Up to 80 % of Phnom Penh's domestic wastewater is pumped into the lakes of Phnom Penh, together with industrial and chemical effluents from a growing industrial sector. Thus the main objective of this research is to monitor the consumer behavior and growing practices of selected aquatic vegetables in peri-urban areas of Phnom Penh in Cambodia. Further a representative sample collection and analyses with respect to contamination by potentially toxic elements (PTEs) such as Cd, Cu, Ni, Pb, Sb, Zn and other pollutants such as pesticides will be done. Finally a human health risk assessment will be publish based on key indicators such as the Target Hazard Quotients (THQ).

2. Topic:	Influence of drying pre-treatments on final organoleptic and physical properties of dehydrated products
Field of study:	Sustainable Rural Development in the Tropics and Subtropics
Supervisor:	doc. Ing. Jan Banout, Ph.D.
Supervisor-consultant:	Ing. Helga Hernandez PhD
Prospective funding:	Internal grant agency,
Annotation: (150-200 words recommended)	Pretreatments, such as blanching, dipping and sulfating are common in most drying processes to improve product quality or process efficiency. The main objective of using blanching is to inactivate enzymes in products such as polyphenoloxidases (PPO) and peroxidase (POD) enzymes, which cause deterioration reactions, off-flavor and undesirable changes in color. Other purposes of blanching include the destruction of microorganisms, acceleration of drying rate by expelling intercellular air from the tissues, softening the texture or by dissociating the wax on the products skin, and forming of fine

	cracks on skin of products. In recent years, exhaustive efforts have been made for an improvement in the quality retention of dried products by altering processing strategy and/or pretreatment. Thus the main purpose of this topic is to use modified dips and blanching pretreatments and investigate their influence on product quality and drying kinetics.
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3. Topic:	Regional differentiation of small-scale biogas technology development, related driving factors and future prospects in rural areas of Southeast Asia
Study Programmes:	Sustainable Rural Development*in the Tropics and Subtropics
Supervisor:	Doc. Ing. Jan Banout, PhD
Supervisor-consultant:	Ing. Jana Mazancová, PhD
Prospective funding:	Internal grant agency (FTA, CULS)
Annotation: (150-200 words recommended)	The anaerobic digestion process is an important technology in improving the environment as it solves organic waste management problems and simultaneously produces both biogas and fertiliser. The use of biogas plants is spreading in many developing countries of Southeast Asia and it has brought benefits to health, environment, economy and energy conservation. This dissertation should present the regional differentiation and the current status of small-scale biogas technology development, as well as examine related driving factors and future prospects. The goal is to provide quantitatively proven information about biogas use in rural areas of Southeast Asia and to assess its major characteristics. Furthermore, policy implications of biogas technology development should be explained and analysed, and policy recommendations should be drawn for consideration in terms to provide the insight into various potential scenarios of biogas technology development in target region. Such results should provide support for decision-makers in terms of development strategies and energy policy formations.

4. Topic:	Social and economic assessment of small-scale biogas plants in developing world: A case of chosen country
Study Programmes:	Sustainable Rural Development in the Tropics and Subtropics
Supervisor:	Doc. Ing. Jan Banout, PhD
Supervisor-consultant:	Ing. Jana Mazancová, PhD
Prospective funding:	Internal grant agency (FTA, CULS)
Annotation: (150-200 words recommended)	Rural households use biomass (i.e. dried dung or firewood) to meet their energy needs. These demands are satisfied at the level of households, but accompanied with negative environmental side/effects such are land degradation and deforestation which often result in various social and economic challenges. In contrast to that, biogas technology is a useful technology in the production of renewable fuel – biogas and brings many benefits to the household. However, it is essential to assess those benefits. This dissertation will be focused on revealing social and economic aspects of small-scale biogas plants in developing world (on a case of chosen country or countries). The study design will be based on the mixed-approach of qualitative and quantitative methodology using tools such are questionnaire surveys, focus group discussions, field visits, observation and evaluation in terms of change in energy usage, kind of benefits, change in sanitation, gender empowerment and operational activities of small-scale biogas plant.

5. Topic:	Assessment of different designs of small-scale biogas plants in Southeast Asia
Study Programmes:	Sustainable Rural Development in the Tropics and Subtropics
Supervisor:	Doc. Ing. Jan Banout, PhD
Supervisor-consultant:	Ing. Jana Mazancová, PhD
Prospective funding:	Internal grant agency (FTA, CULS)
Annotation: (150-200 words recommended)	<p>The small-scale biogas plants are widely used as a possible treatment of manure in tropics. The production of biogas through the process of anaerobic digestion (AD) provides a clean, efficient, and low-cost renewable source of energy and the digested matter is a high-quality fertilizer for crops. However, there are various types of small-scale biogas plants in Southeast Asia and therefore there is an urgent need in assessment of those various designs and types.</p> <p>This dissertation will be focused on evaluating different designs of small-scale biogas plants in Southeast Asia. It will evaluate their pros and cons from technical, economic and environmental perspectives and provide recommendations for future implementation.</p>

6. Topic:	Small-scale biogas plants and their environmental impacts reduction
Study Programmes:	Sustainable Rural Development in the Tropics and Subtropics
Supervisor:	Doc. Ing. Jan Banout, PhD
Supervisor-consultant:	Ing. Jana Mazancová, PhD
Prospective funding:	Internal grant agency (FTA, CULS)
Annotation: (150-200 words recommended)	<p>The anaerobic digestion process is an important technology in improving the environment because it solves organic waste management problems and simultaneously produces both biogas and fertiliser. The use of biogas plants has been spreading in many developing countries over last decades and it has brought benefits to health, environment, economy and energy conservation.</p> <p>This dissertation will be focused on the determining environmental impacts reduction through installation and use of small-scale biogas plants with comparing various scenarios (i.e.: current common practices and an improved scenario with AD plants to produce biogas and CHP plants to produce electrical and thermal power). The investigated environmental impacts should be Global Warming Potential (kg CO₂-eq.), Acidification (kg SO₂-eq.) and Eutrophication (kg PO₄-eq.).</p>

7. Topic:	Monitoring volatile compounds and fatty acid composition of tropical oils under different storage condition
Study Programmes:	Sustainable Rural Development*in the Tropics and Subtropics
Supervisor:	prof. RNDr. Irena Valterová, CSc.
Supervisor-consultant:	Ing. Klára Urbanová, Ph.D.
Prospective funding:	
Annotation: (150-200 words recommended)	<p>Oxidation of lipids is one of the major causes of food deterioration, resulting in the formation of various compounds that impair product quality. Aldehydes, ketones, alcohols, alkanes and alkenes are some of the major volatile secondary lipid oxidation products. They affect flavour of oils and other food products containing fat. The objective of this research will be monitoring and analysis of volatile compounds of different tropical oils under different storage conditions, next the chemical composition fatty acids of these oils will be analysed. For characterization of volatile lipid oxidation products gas chromatography coupled to mass spectrometry (GC-MS) is the</p>

	method of choice. Sample preparation for the analysis of volatile secondary lipid oxidation products involves various approaches, the solid phase microextraction (SPME) will be used in this research as main method. SPME can be used either for a rapid profiling of volatile compounds for qualitative purposes or for quantitation of particular compounds. Fatty acids will be analysed after suitable derivatisation using gas chromatography with mass spectrometry.
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8. Topic:	Optimization of the production processes of solid biofuels in selected developing country with a focus on technological lines solutions
Study Programmes:	Sustainable Rural Development in the Tropics and Subtropics
Supervisor:	Doc. Ing. Vladimír Krepl, CSc.
Supervisor-consultant:	Ing. Tatiana Ivanova, Ph.D.
Prospective funding:	
Annotation: (150-200 words recommended)	<p>Hypothesis: Existing technology lines for the production of solid biofuels are equipped with standard types of equipment (grinding, pressing etc. components) oriented on the processing of common type of raw biomass material. This fact makes difficult not only to sell such equipment but also to assure the users of technology lines with obtaining cheap and high-quality final product. The solution can be in optimizing the equipment of technological lines for solid biofuels production and its adoption to the specific conditions of potential users (region, country).</p> <p>The main research tasks (objectives) of the thesis are:</p> <ul style="list-style-type: none"> - determination of potential sources of raw material (yearly accumulated quantity) in the region (country); - evaluation of final consumers of the product; - assessment of the most suitable form of solid biofuel for the consumers; - analysis of the physico-chemical properties of the proposed form of biofuel (quality evaluation); - selection of an optimal equipment of a production technological line according to the specific properties, type of raw material, productivity and energy consumption. - elaboration of methodology for technological lines assembling based on outputs from the research.

9. Topic:	The study of a biochar application as a raw material for solid biofuel production in a form of pellets and briquettes
Study Programmes:	Sustainable Rural Development in the Tropics and Subtropics
Supervisor:	Doc. Ing. Vladimír Krepl, CSc.
Supervisor-consultant:	Ing. Petr Hutla, CSc. (VUZT)
Prospective funding:	
Annotation: (150-200 words recommended)	<p>Hypothesis: Biochar represents a product that results from the process of carbonization or pyrolysis. This product has many positive properties for application in different areas. One of the most prospective areas of biochar application represents its application for energy purposes. In present, exist a problem with its utilization in initial form due to its low density. A solution to this problem represents densification of biochar in solid biofuel in different forms - pellets, briquettes.</p> <p>The objective of the thesis is:</p> <ul style="list-style-type: none"> - determination of initial material properties (physicochemical and mechanical);

	<ul style="list-style-type: none"> - determination of the most suitable technology for initial processing of biochar; - determination of the most suitable technology for densification of biochar; - study of the abrasive effect of the initial material on the main working parts of pressing equipment; - analysis of properties of solid biofuel obtained from biochar; - analysis of emissions in the burning process of solid biofuels obtained from biochar.
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10. Topic:	Treatment of organic waste from palm trees by chemical process and pyrolysis process
Study Programmes:	Sustainable Rural Development in the Tropics and Subtropics
Supervisor:	Doc. Ing. Vladimír Krepl, CSc.
Supervisor-consultant:	Ing. Jiří Sobek, Ph.D. (ČSAV), Ing. Petr Hutla, CSc. (VUZT)
Prospective funding:	
Annotation: (150-200 words recommended)	<p>Hypothesis: The abundant amount of biomass residue from palm tree can potentially be use as a renewable energy source, e.g. through conversion into other energy products such as biofuel. The use of biomass in other forms of energy products is more beneficial than the direct burning of biomass because it releases many pollutants into the air. One potential technique for alleviating these environmental concerns is to convert palm tree residues into bio-oil and bio-char via chemical treatment and by the pyrolysis as well.</p> <p>First principal objective of the thesis is extracting the cellulosic component of palm tree waste and functionalizing this cellulose through graft copolymerization with acrylic acid. Provide test of extracted cellulose as biomass from the energetic viewpoint.</p> <p>Second principal objective of the thesis is to determine the effects of different reaction temperature and different feed rate on the yield of products bio oil, gas and bio char.</p> <p>The cellulose extraction included hot alkali treatment with aqueous sodium hydroxide to remove the non-cellulosic binding materials or selective hydrolysis with catalyst. The alkali treatment is followed by an oxidative bleaching using per acid/hydrogen peroxide mixture with the aim of removing the rest of non-cellulosic materials to improve the fiber hydrophilicity and accessibility towards further grafting reaction.</p> <p>The proposed project is the design of chemical and pyrolysis process technology for palm oil tree residues (as bark, leaves, branches etc.). The cellulosic components as well as outputs from pyrolysis process to be use for the production of Bio oil, Syn Gas, and Char to get the environmental friendly products and to replace the fossil fuels. A collection of the samples of the Palm waste material from the different tropical and subtropical countries will be provide. The design of the process technology will be modeling with objective to get the maximum efficiency from this biomass and characterize the outputs with focus to disseminating the results from the research. Particularly, the advantages and disadvantages this biomass through the environmental and energetic point of view.</p>

11. Topic:	Rehabilitation of postharvest technology in Ethiopia – focused towards Grain milling and Edible oil processing
Study Programme:	Sustainable Rural Development in the Tropics and Subtropics

Supervisor:	doc. Ing. Vladimír Krepl, CSc.
Supervisor-consultant:	Ing. Pavel Burian, Ph.D.
Prospective funding:	Ministry of Industry Ethiopia + Aid for Trade – MPO ČR
Annotation: (150-200 words recommended)	<p>The information from National Millers Association of Ethiopia confirmed increasing importance of the sector and its important role in import substitution for food-processing industry products. Nowadays, Ethiopia is not fully self-reliant in terms of food security in grain milling and bakery products industry. Ethiopia's total production of grain is not adequate to meet its demand; the national production only meets 65% of the country's requirements.</p> <p>The deplorable technical state of machines and equipment for milling grain and pressing oils is the current big problem in Ethiopia. Main objective of the thesis is to design the technological process-flow guideline for the repair and reconstruction of mills and machinery for the production of edible oils. Proposal for developing a methodology for training in maintenance and repair of machines will be an integral part of the thesis. Hypothesis: Edible oil processing is a crucial area in the Ethiopian food-processing sector. It consists of micro and small processors who make up around 75% of all processors in the sector.</p>

12. Topic:	Energy production from cottonseed oil processing waste in the Eastern Ethiopia
Study Programme:	Sustainable Rural Development in the Tropics and Subtropics
Supervisor:	doc. Ing. Vladimír Krepl, CSc.
Supervisor-consultant:	Ing. Pavel Burian, Ph.D.
Prospective funding:	Ministry of Industry Ethiopia + Aid for Trade – MPO ČR
Annotation: (150-200 words recommended)	<p>Eastern Ethiopia produces a lot of waste from cottonseed oil production. Due to the toxicity nature of this waste, it cannot be processed into feed for livestock (except poultry). Given that this area suffers a shortage of firewood, this waste has a potential as an alternative energy source. It offers good spinoffs in the cottonseed oil production process (increased economic self-sufficiency of oil pressing shops).</p> <p>At present the biomass utilization for the energetic potential in Ethiopia lies at the tail of UNDP raster of renewable sources energy utilization. Nevertheless, from biomass production point of view, Ethiopia being a cotton crop producing country, it is relatively well positioned to exploit the energy potential from the by-product of cottonseed oil production. The objective of the thesis is to investigate energy potential of the cottonseed residues through the laboratory tests and measurements. The specific objective of the thesis will be focused on the behaviour of biomass from the cottonseed residues in the form of briquettes during combustion such as heat efficiency, NOx and CO2 emissions, moisture content and mechanical properties of briquettes. Hypothesis: Can this lays a foundation for reaching a 30% renewable energy share on energy needs for Ethiopia as prescribed in the National Strategic plan?</p>

13. Topic:	Production of Bio – Ethanol from Iraqi sugar cane Molasses and Evaluation of its Potential (Renewable Sources of Energy)
Study Programme:	Sustainable Rural Development in the Tropics and Subtropics
Supervisor:	doc. Ing. Vladimír Krepl, CSc.
Supervisor-consultant:	Ing. Petr Hutla, CSc.

<p>Prospective funding:</p>	<p>Cooperation with the University of Baghdad, College of Agriculture Abu Ghraib. Tentative agreement. Iraqi candidate ... self-payer.</p>
<p>Annotation: (150-200 words recommended)</p>	<p>Nowadays the petroleum products are running out of race due to unbalanced relation between supply and demand besides air pollution of sources. Fossil fuels are the primary global transportation energy source, but are also a limited resource. In addition, their continued use amplifies levels of SO_x, NO_x, CO_x, and CO₂ in the atmosphere, leading to increased acid rain and global greenhouse gas concentrations. The hike in petrol cost is mainly due to shortage of resources which leads to search for alternate fuel to replace fossil fuel. An eco - friendly bio-ethanol is one such alternate fuel that can be used in unmodified petrol engines with current fueling infrastructure and it is easily applicable in present day combustion engine, as mixing with gasoline (Hansen et al., 2005). Combustion of bio-ethanol results in relatively low emission of volatile organic compounds, carbon monoxide and nitrogen oxides. The emission and toxicity of bio-ethanol are lower than those of fossil fuels such as petroleum, diesel etc., (Wyman & Hinman), 1990 Sugarcane (<i>Saccharum officinarum L.</i>) is a perennial grass most often grown in the Southern Iraq in the Missan governorate for production sugar and molasses; however the sugar s extracted from sugarcane can be easily fermented to produce ethanol. Sugarcane is considered an ideal energy crop because it produces readily fermentable sugars and very high yields of green biomass. <i>Saccharomyces Cerevisiae</i> is the cheapest strain available for the conversion of biomass substrate. In this study, it is used for bio-ethanol production from Iraqi sugar cane molasses. The influencing parameters that effect the production of bio-ethanol from sugar cane molasses will be optimized. The research and particular laboratory tests will be provide at CULS Prague, in the Research Institute of Agriculture Engineering and the University of Baghdad, College of Agriculture Abu Ghraib. With respect to the fact that until present time nobody carry out the research of molasses from Iraqi sugarcane from the energetic viewpoint, the theme of thesis is possible consider as original one.</p>

Department:	Department of Economics and Development
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1. Topic:	Promoting value-chains of neglected and underutilised species: Biodiversity, Markets, Living standard
Study Programmes:	Sustainable Rural Development in the Tropics and Subtropics
Supervisor:	prof. dr. ir. Patrick Van Damme
Supervisor-consultant(s):	Ing. Vladimír Verner, Ph.D. (contact person) dr. ir. Wouter Vanhove
Prospective funding:	Czech ODA projects, BMBF project and IGA FTZ CZU
Annotation: (150-200 words recommended)	Food security and economic development suffer from a declining number of domesticated plant or crop species. The recent focus on revamping/domesticating/using underutilised species would be one strategy to improve livelihood of poor households by supporting food security, improving nutrition and income generation via selling surpluses at local markets and/or international markets. Promotion of such value chains is always connected with local traditional knowledge and values, cultural and biological diversity, policies, markets, consumer behaviours, etc. Household preferences, biodiversity decline and changing demographic and socio-economic profiles of households are key points that need to be documented and analysed in order to promote the more sustainable value chains. Thus, the objective of the research will be to obtain insight in the structure and functioning of the value chains, incl. markets of underutilised plant species that are useful for local populations. Specifically, it will be necessary to (i) identify all chain actors involved in the value chains and describe their characteristics, activities and linkages, (ii) map and analyse the market chains of these products and (iii) formulate possible scenarios on how to add more value as well as how to better organise these market chains.

2. Topic:	Role of traditional farming systems, agricultural practices and technology innovations on livelihood of rural and/or less developed regions worldwide
Study Programmes:	Sustainable Rural Development in the Tropics and Subtropics
Supervisor:	Dr. sc. habil., Dr. sc. agr., Ing. Miroslava Bavorová (contact person)
Supervisor-consultant(s):	Ing. Vladimír Verner, Ph.D. (contact person)
Prospective funding:	BMBZ project and IGA FTZ ČZU
Annotation: (150-200 words recommended)	Traditional knowledge, farming systems, land-use and technologies still play important role in maintaining livelihood of many households worldwide, particularly in less developed regions. However, climatic dynamics, rapid economic growth as well as institutional and social changes put these traditions under pressure. These changes lead to migrations, biodiversity decline, traditional knowledge and systems degradation, and consequently to lower resilience of particularly minor farming systems, such as mangrove forests, mountains, arid areas or urban/peri-urban zones. Thus, the aim of the thesis will be to understand, describe and analyse current trends that influence agricultural production and biodiversity.

3. Topic:	Consumer behaviour and household preferences towards tropical products: Lessons learnt from developed and developing regions
Study Programmes:	Sustainable Rural Development in the Tropics and Subtropics
Supervisor:	Dr. sc. habil., Dr. sc. agr., Ing. Miroslava Bavorová (contact person)

Supervisor-consultant(s):	Ing. Petra Chaloupková, Ph.D. (contact person) Ing. Vladimír Verner, Ph.D.
Prospective funding:	Czech ODA projects, IGA FTZ CZU, Erasmus projects
Annotation: (150-200 words recommended)	Consumer behaviour and preferences of household members influence are good starting point to understand what products offered on the market are more attractive for the people and what nutritional and economic consequences are behind the whole process. As well as collection of wild products is driven by cultural norms, economic situation or nutritional habits of households. The aim of the research will be to determine which demographic, social and economic indicators are main driving forces of demand and how supplies could modify them, and, to what extent these trends could result in positive/negative impact on living standard of the households in terms of financial balance, health situation or changes in food, cultural and agricultural diversity.

4. Topic:	The lack of young labour in agriculture: the case of the Ukraine
Study Programmes:	Sustainable Rural Development in the Tropics and Subtropics
Supervisor:	Dr. sc. habil., Dr. sc. agr., Ing. Miroslava Bavorová (contact person)
Supervisor-consultant(s):	Ing. Petra Chaloupková, Ph.D. (contact person)
Prospective funding:	Ukraine
Annotation: (150-200 words recommended)	In many eastern European countries, young people, even if they do study agriculture, do not want to work in agriculture. Among important reasons for this are that young people migrate from rural areas and they prefer to work in another sectors. Because of this, the agricultural businesses are facing the lack of skilled labour. The objective of the study is to investigate both the demand and supply side of the problem, first: to investigate, if the problem of lack of young labour is prevalent in the Ukraine agriculture, using a survey among Ukraine agricultural businesses; second: to identify factors that affect national and international out-migration of Ukraine students of agriculture; third: to identify factors, that affect the students willingness to work in agriculture, with special attention to the gender aspect. Research approach will be based on both qualitative and quantitative surveys among agricultural businesses and students of agriculture in the Ukraine. The quantitative data will be analysed using descriptive statistics and regression analysis. The better understanding of the motives of young people with no interest in working in agriculture could help policy makers to implement measures that would help to attract more young people into agriculture in the future.

5. Topic:	Application of Integrative Impact Assessment Framework for impact analysis of Fairtrade value chain certification and horizontal integration of cashew farmers in the coastal region of Kenya
Study Programmes:	Sustainable Rural Development in the Tropics and Subtropics
Supervisor:	Dr. sc. habil., Dr. sc. agr., Ing. Miroslava Bavorová
Supervisor-consultant(s):	Ing. Jiří Hejkrliík, Ph.D. (contact person)
Prospective funding:	EU Trust Fund for Africa, CIGA CULS or IGA FTA
Annotation: (150-200 words recommended)	The third-party certification by various ethical standards and horizontal integration of farmers into producers' groups have become widespread practise of development of international agricultural value chains. It has become also popular tool for development projects of many international donors. The FTA/CULS is currently starting such project in coastal region of Kenya. The projects aims to support 15 000 small cashew farmers

	<p>through Fairtrade and organic certification combined with establishment of producers' groups with market linkages to the local processing and EU traders.</p> <p>However, the proliferation of externally executed responsible trade initiatives has also been met by strong criticism in terms of limited positive impact, low sustainability and effectiveness of used certification schemes. Therefore, there is a need for more empirical data and analyses to address such widespread credibility concerns.</p> <p>Therefore, in this Ph.D. proposal topic, we want to study potential for innovation and consequent impact of such external development interventions. We envisage to use Rapid Appraisal of Agricultural Innovation Systems (RAAIS). RAAIS as a main diagnostic tool for guiding the baseline innovation capacity analysis of this complex development intervention. The RAAIS incorporate different dimensions of problems (e.g. biophysical, technological, socio-cultural, economic, institutional and political), interactions across different levels (e.g. national, regional, local), and the constraints and interests of different stakeholder groups (farmers, cooperatives, government, researchers, etc.).</p> <p>As for the impact assessment, we will use modified Integrative Impact Assessment Framework that allows for the evaluation of positive and negative local-level impacts that will result from this "responsible trade" interventions and/or Social Life Cycle Assessment of Products - the assessment of social and socio-economic impacts of products life cycle.</p>
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6. Topic:	Assessing personality trait, cultural practices and moral principles as tools for improving natural resource management practices in Nigeria
Study Programmes:	Sustainable Rural Development in the Tropics and Subtropics
Supervisor:	Dr. sc. habil., Dr. sc. agr., Ing. Miroslava Bavorová
Supervisor-consultant:	Ing. Jana Mazancová, PhD
Prospective funding:	Internal grant agency (FTA, CULS)
Annotation: (150-200 words recommended)	Nigeria has emphasized sustainable resource management as one of its main goals for a next decade as rural population has been suffering from degradation of natural resources they are directly dependent on. Involving local communities while knowing their cultural context has been recognised as crucial for successful improvement in natural resource management. The aim of the thesis will focus on identification of inhibiting and stimulating personality traits, cultural practices and moral values among young generation of rural population in Nigeria. Based on that the framework linking the three sets of indicators (personality trait, cultural practices and moral values) to improve sustainable resource management in Nigeria will be proposed. The methodology will be based on a mixed-approach of quantitative and qualitative research using data collection tools as questionnaire surveys, focus group discussions, and interview with key informants.

7. Topic:	Evaluating Priorities on Socio-Economic Vs Environmental Development: A Comparative Assessment amongst Different Echelons of Youths in Nigeria
Study Programmes:	Sustainable Rural Development in the Tropics and Subtropics
Supervisor:	Dr. sc. habil., Dr. sc. agr., Ing. Miroslava Bavorová
Supervisor-consultant:	Ing. Jana Mazancová, PhD
Prospective funding:	Internal grant agency (FTA, CULS)

<p>Annotation: (150-200 words recommended)</p>	<p>The population of Nigeria has reached 190 million (2017) of inhabitant with the median age of 17.9 years. More than 60% of population is created by youth under 25. The rural population consists of 49%. Rural youth are facing many challenges in forms of low access to education and limited amenities which are considered as main push factors for migration to urban areas in order to seeking better life. However, Nigeria report abundant natural and human resources to be harnessed for socio-economic development of rural areas. The aim of the thesis focuses on evaluation of the disparities in behaviour, if there are any, amongst Nigerian rural youths from different social ranks in order to understand and analyse the different perceptions of economic and environmental values within the framework of socio-economic development of rural areas. The methodology will use the assessment of pro-environmental behaviour using the theory of planned behaviour.</p>
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<p>8. Topic:</p>	<p>Rural Women and Youth Empowerment through Agri-cooperatives in Selected Countries</p>
<p>Study Programmes:</p>	<p>Sustainable Rural Development in the Tropics and Subtropics</p>
<p>Supervisor:</p>	<p>Dr. sc. habil., Dr. sc. agr., Ing. Miroslava Bavorová</p>
<p>Supervisor-consultant:</p>	<p>Ing. Jana Mazancová, PhD</p>
<p>Prospective funding:</p>	<p>Internal grant agency of CULS and FTA</p>
<p>Annotation: (150-200 words recommended)</p>	<p>Cooperatives are, in general, considered as one of the tool for rural development, not only in developing countries, as they can provide several main benefits, such are better access to employment, improved conditions of work and social benefits. These are crucial for vulnerable social groups as women and youth. The main objective of the study is to find out possible contributions of agriculture co-operative enterprises to gender equality and women's empowerment in achieving the objectives of the Platform for Action from the Fourth World Conference on Women in 1995 and Women's empowerment principles in business. Further, the thesis aims at analysing the involvement of youth in cooperatives in selected countries/regions, their attraction for youth and the role in alleviation of rural-urban migration of youth in selected regions. The methodology is based on a mixed approach combining qualitative and quantitative data collection tools (questionnaire surveys, focus group discussion, persona interview with key informants.)</p>