中国工程科技知识中心
China Knowledge Centre for Engineering Sciences and Technology

《中国农业发展战略研究》专题快报

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【动态资讯】

1. Rural and urban communities need different policies to boost economic mobility

【**PennState News**】UNIVERSITY PARK, Pa. — The farther away from a city a person is raised, the more likely they are to climb the economic ladder, according to economists, who also found that community characteristics associated with upward mobility actually have different effects in rural and urban locations. The researchers looked at intergenerational economic mobility in low-income children at the U.S. county level, which also allowed them to examine the effects of distance from metropolitan counties — those having populations of 50,000 or more. They found that being far removed from an urban area is beneficial to low-income children's upward mobility, all other things being equal."That's a significant finding, because it suggests that policy aimed at improving mobility shouldn't simply consider rural and urban effects, but should account for how far a county is from an urban area," said Stephan Goetz, professor of agricultural and regional economics, Penn State, and director of the Northeast Regional Center for Rural Development.

链接:

https://news.psu.edu/story/535452/2018/09/11/research/rural-and-urban-communities-need-different-policies-boost-economic

2. Trees reveal the evolution of environmental pollution

【**AgenciaFAPESP**】In an article published in the journal Environmental Pollution, Brazilian researchers showed that tree species Tipuana tipu have been successfully employed as a marker of atmospheric pollution by heavy metal and other chemical compounds in Sao Paulo, Brazil's biggest metropolis. This Bolivia-native species commonly known as tipuana

tree is ubiquitous in the city. Researchers at the University of São Paulo's Bioscience Institute (IB-USP) and Medical School (FM-USP), in collaboration with colleagues at the University of Campinas (IB-UNICAMP), have considered T. tipu the most suitable tree for measuring environmental pollution levels in São Paulo over the long term by analyzing the chemical composition of tree bark and growth rings.

链接:

http://agencia.fapesp.br/trees-reveal-the-evolution-of-environmental-pollution/28693/

3. 'High-yield' farming costs the environment less than previously thought -- and could help spare habitats

【**EurekAlert!**】Agriculture that appears to be more eco-friendly but uses more land may actually have greater environmental costs per unit of food than "high-yield" farming that uses less land, a new study has found. There is mounting evidence that the best way to meet rising food demand while conserving biodiversity is to wring as much food as sustainably possible from the land we do farm, so that more natural habitats can be "spared the plough". However, this involves intensive farming techniques thought to create disproportionate levels of pollution, water scarcity and soil erosion. Now, a study published today in the journal Nature Sustainability shows this is not necessarily the case.

链接:

https://www.eurekalert.org/pub_releases/2018-09/uoc-fc091018.php

4. Soil holds the secret to mitigating climate change

【**Michigan State University**】Food production doesn't have to be a victim of climate change. New research from Michigan State University suggests that crop yields and the global food supply chain can be preserved by harnessing the critical, and often overlooked, partner in food supply soil. The research, led by MSU Foundation Professor Bruno Basso and published in Agriculture and Environmental Letters, is the first of its kind to provide critical insight to the importance of soil in managing risks associated with climate change."The long-term sustainability of agricultural systems strongly depends on how we use soil," Basso said. "This research proves that with the application of innovation through better soil management, we're one step closer to preserving our food supply and mitigating the effect that climate change and global warming has on our lives."

链接:

https://msutoday.msu.edu/news/2018/soil-holds-the-secret-to-mitigating-climate-change/

5．RUDN agriculturists suggested an optimal strategy for growing wheat in northern Eurasia

【EurekAlert!】A team from RUDN and the Italian Euromediterranean Center for Climate Change (CMCC) found out how climate changes may affect wheat harvest in high latitudes of the Earth (on the example of Russia). Agricultural conditions are expected to undergo the biggest changes in the northern part of the Eastern hemisphere. Scientists believe that in the upcoming decades the most yielding areas in the south of the country will be hit by droughts. The optimal territory for wheat and other grain crops cultivation would move north-east and also to the Far East. The study was published in the Land Use Policy journal. According to the scientists, Russian agriculture has two paths to choose from. It can re-cultivate abandoned lands, especially in Central Russia (no less than 27 million ha in total). This strategy meets climatic requirements, but would hardly work from the economic point of view: low soil quality and scarce water resources would require considerable investments in grain crops cultivation which is unlikely given current low wheat prices. RUDN scientists suggest shifting attention to north-western regions of the country and the Far East. If new varieties of wheat are developed in view of local climatic conditions, spring varieties are used, and experiments with other grain crops (millet, barley) are carried out, these regions may become the main agricultural territories of Russia.

链接:

https://www.eurekalert.org/pub_releases/2018-09/ru-ras091818.php

6．广西2020年受污染耕地安全利用率将达79%

【中国农业新闻网】记者从广西壮族自治区环保厅了解到，近日，《广西土壤污染防治攻坚三年作战方案（2018~2020年）》正式发布实施，确保到2020年，广西受污染耕地安全利用率达到79%左右，土壤环境质量总体保持稳定并逐步改善。据自治区环保厅介绍，广西将全面开展土壤环境基础工作，在今年底前，基本完成农用地土壤污染状况详查，查明农用地土壤污染的面积、分布及其对农产品质量的影响，并建立起土壤环境质量监测网络。按照方案，到2020年，广西将建立起耕地土壤环境质量分类清单，开展受污染耕地综合治理，针对重度污染耕地，制定并实施受污染耕地种植结构调整或退耕还林还草计划；严格用地准入管理，全面建立污染地块名录，加强土地征收、收回、收购等环节监管，实施污染地块环境风险管控。

链接:

http://www.farmer.com.cn/jjpd/nz/fl/201808/t20180831_1402345.htm

7．挖掘盐碱地的增产潜力

【中国农业新闻网】近日，“渤海粮仓”科技示范工程河北项目区通过科技部验收。2013年启动的“渤海粮仓”科技示范工程，旨在通过研发、集成、示范推广耐盐优质高产农作物品种、有效改良盐碱地等，提高环渤海平原5000万亩中低产田、盐碱荒地的粮食生产能力。5年来，在河北、天津、山东和辽宁广袤的沿海平原上，科研人员和农民一起适盐治盐、以盐治盐，找到了改良沿海中低产田和盐碱荒地的“金钥匙”。冬季抽提地下咸水浇灌结冰，春季融化时，高浓度咸水先入渗，后融化的微咸水和淡水后入渗，这就产生了洗盐的效果，从而实现盐碱地耕层脱盐。经过实验他发现，采用“咸水结冰灌溉法”，沧州市海兴县小山乡小山东村的棉花亩产达到了200多公斤。

链接:

http://www.farmer.com.cn/jjpd/nz/fl/201808/t20180831_1402354.htm

8．三聚环保：秸秆炭化还田增产效果明显

【中国农业新闻网】生物炭肥料是由农作物秸秆通过中低温热裂解工艺转化而成的一种稳定有机质。这种以生物炭为介质生产的炭基肥料，返回农田，可以改善土壤结构及理化性状，增加土壤有机碳含量。这种生产模式被称为“秸—炭—肥”还田改土模式。日前，农业农村部印发《农业绿色发展技术导则（2018~2030年）》，生物炭基肥料等新产品及其生产工艺被列为我国未来十多年农业绿色发展集成示范技术。北京三聚环保新材料股份有限公司是国内知名的生物炭基肥料生产商，近日，笔者来到这里，对该公司的生产技术和推广模式一探究竟。“农作物秸秆炭化还田—土壤改良技术的优点有很多。”据该公司负责人介绍，这种炭基肥料具有丰富的孔隙结构，能够增加土壤的透气性，还能解决土壤酸化和肥料中微量元素不足的问题，有利于提高土壤肥效。“此外，它还能提高地温，有利于作物生长和土壤微生物环境的修复，并提高农产品产量和质量。”该负责人介绍，他们利用秸秆炭化还田—土壤改良技术，广泛开展“三聚地沃”炭基肥产品示范，市场供不应求，取得了非常显著的效果。好技术带来了产业化应用的“加速度”。三聚环保在秸秆生物质循环利用产业布局上不断加速，目前已对接全国超过400个县（市），成立项目落地公司160余个，已投产6家。负责人表示，到2020年底，公司规划建设300家以上的炭基肥生产厂，实现每年炭基肥产能1500万吨，秸秆收集运营能力3000万吨。目前，该公司积累了一套成熟的技术模式，将为农作物秸秆炭化还田技术的研发和推广做好示范。

链接:

http://www.farmer.com.cn/jjpd/nz/fl/201809/t20180911_1404274.htm

9．银川市推进化肥、农药、除草剂“三减”行动

【中国农业新闻网】2015年，我国打响了农业面源污染治理攻坚战，提出了到2020年实现农业用水总量控制，化肥农药使用量减少，畜禽粪便、农作物秸秆、地膜基本资源化利用的“一控两减三基本”的目标任务。日前，农业农村部举行新闻发布会宣布，截至2017年，我国农药使用量已经连续三年减少，化肥使用量已经连续两年减少。在治理农业面源污染这一攻坚战中，宁夏回族自治区银川市以实施“蓝天、碧水、净土”工程为着力点，深入推进化肥、农药、除草剂“三减”行动，大力推进病死畜禽资源化利用、农作物秸秆综合利用等变废为宝的循环农业项目，不但净化了空气、美化了环境，也增加了土壤的有机质含量，同时也让农业绿色发展的理念日益深入人心，涌现出一大批样板模式。

链接:

http://www.farmer.com.cn/jjpd/nz/nzdt/201808/t20180824_1400853.htm

10．落实污染防治 福建加强耕地土壤保护

【中国农业新闻网】本报福州8月21日电 （记者何璐）近日，福建省国土资源厅印发《关于加强耕地土壤保护落实土壤污染防治工作的通知》，要求各市、县（区）国土资源部门要及时掌握耕地土壤环境质量类别信息、污染地块信息，加强耕地土壤管理，优化土地整治项目空间布局。通知明确，各类建设项目要把是否占用耕地、占用耕地的土壤环境质量等作为项目建设方案比选论证的重要因素，优化项目选址，不占或少占耕地。项目选址确实无法避让优先保护类耕地的，要全面推行建设占用耕地耕作层剥离再利用；市、县（区）国土资源部门要切实督促项目建设单位落实责任，在项目施工前将建设占用耕地耕作层剥离到指定地点，用于耕地开发、土地复垦项目的覆土或中低产田土壤改造。通知要求，土地整理和高标准农田建设要优先安排在优先保护类耕地集中的区域；严格管控类耕地未经当地政府组织相关部门开展治理与修复、符合耕地土壤环境质量要求的，不得开展土地整理和高标准农田建设。

链接:

http://www.farmer.com.cn/jjpd/nz/nzdt/201808/t20180822_1400029.htm

【统计数据】

1．2017中国土地矿产海洋资源统计公报

发布源：中华人民共和国自然资源部

发布时间：2018-05-18

摘要：2016 年年末，全国共有农用地 64512.66 万公顷，其中耕地 13492.10 万 公顷（20.24 亿亩），园地 1426.63 万公顷，林地 25290.81 万公顷，牧草地 21935.92 万

公顷；建设用地 3909.51 万公顷，其中城镇村及工矿用地 3179.47 万公顷。2016 年，全国因建设占用、灾毁、生态退耕、农业结构调整等减少耕地面 积 34.50 万公顷，通过土地整治、农业结构调整等增加耕地面积 26.81 万公顷， 年内净减少耕地面积 7.69 万公顷。全国土地利用数据预报结果 2 显 示，2017 年 年 末，全 国 耕 地 面 积 为 13486.32 万公顷（20.23 亿亩），全国因建设占用、灾毁、生态退耕、农业结 构调整等减少耕地面积 32.04 万公顷，通过土地整治、农业结构调整等增加耕地 面积 25.95 万公顷，年内净减少耕地面积 6.09 万公顷；全国建设用地总面积为 3958.65 万公顷，新增建设用地 53.44 万公顷。

链接:

http://agri.ckcest.cn/ass/3f5a5d57-78cd-476b-9108-7beba88310fc.PDF

【文献速递】

1．全球农产品贸易网络及其演化分析

作者：王祥；强文丽；牛叔文；刘爱民；成升魁；李真

文献源：自然资源学报,2018

摘要：论文基于复杂网络视角,选择谷物、油料、纤维、糖料、果蔬、肉类6大类57种农产品,用1986—2013年间的贸易数据,构建全球农产品贸易网络,定量分析了这个复杂网络的特征和演化趋势。结果表明:1)1986—2013年,全球农产品贸易总量增加了2.26倍,其中油料作物增加幅度最大,增加了4.97倍。参与到全球农产品贸易网络中的国家(地区)逐年增多。2)拟合节点累积度分布的幂函数曲线,表明全球农产品贸易节点度分布具有不均匀性,节点度小的节点数量多,节点度大的节点数量少,满足幂律分布。"枢纽"节点不断成长。3)全球农产品贸易网络密度上升、平均路径长度下降、多元化趋势加强、网络结构复杂化等特征日益突出。4)我国农产品进口来源国(地区)集中程度较高,农产品进口潜在风险较大。一方面要进一步扩大开放,拓展进口来源国(地区)的数量,更好地利用国际资源;另一方面强化农业基础,提高农业综合生产能力,防范风险,保障粮食安全。

链接:

http://agri.ckcest.cn/ass/824c6ee5-54a3-4312-8d91-0a25bf715602.pdf

2．基于环境壁垒的中国农产品国际贸易发展对策

作者：郑淑伟

文献源：现代营销(下旬刊),2018

摘要：农业无论是在发展中国家还是在发达国家都占据着举足轻重的地位,由于每个国家的地理位置与生态环境都存在不同的差异,这也使农业在发展过程中难以避免地发生

各种各样的动植物疫病,这些疫病一旦传入其他国家,便极有可能引发一系列严重的后果,进而给国家和人民的生命安全带来威胁,这也使各个国家纷纷采取措施来限制农产品出口,在这些措施中,尤以环境壁垒措施最为有效。但由于我国对农产品国际贸易中环境壁垒的认识不足,使我国农产品在国际贸易中屡屡受到环境壁垒问题的限制,严重阻碍了我国农产品的对外贸易。为此,本文通过对国际贸易中环境壁垒进行简要的介绍,在此基础上对中国农产品国际贸易中的环境壁垒问题进行深入的分析,以此提高相应的发展对策,希望能以此消除或降低环境壁垒问题对我国农产品国际贸易中产生的不利影响。

链接:

http://agri.ckcest.cn/ass/b4fb0f22-6997-497b-884a-8ff6de81e95b.pdf

3．基于结构方程模型的陕北退耕区农业产业-资源系统耦合机制分析——以吴起县为例

作者：王继军；郭满才；乔梅；成思敏；李茂森；赵晓翠

文献源：自然资源学报,2018

摘要：农业产业-资源耦合机制通过改变农业资源利用方向和强度调控农业产业-资源系统耦合路径,影响系统耦合效果。利用结构方程模型,通过对典型退耕区域——陕北吴起县2016年497户农户调研资料的分析,验证了政策、信息(技术、市场)、农业资源、农业产业是系统耦合机制的基本构成和重要驱动要素,该县域已形成了相对稳定的多维链型耦合机制。在这一机制作用下,农业产业有所发展,但仅停留在资源显性利用上,农业产业-资源系统局部相悖,系统对经济效益总的标准化路径系数为0.112,且产业对经济效益的路径系数仅为-0.047;从各驱动要素间相互作用来看,农业产业与农业资源单向作用,系统部分链网缺失,说明目前的耦合机制不能有效支撑农业产业-资源系统的良性运行,具体表现为:未充分挖掘林草生态系统的经济功能,资源未达到最优配置。因而,下一步需通过对政策、信息(技术、市场)、农业资源、农业产业等要素的优化组合,构建新的良性耦合机制,进而实现吴起县农业产业-资源系统的优化耦合,促进退耕区生态文明建设。

链接:

http://agri.ckcest.cn/ass/6da3d7bb-7db2-4dd9-a7e3-faa57efadef2.pdf

4．百年来的资源环境承载力研究:从理论到实践

作者：封志明；杨艳昭；闫慧敏；潘韬；李鹏

文献源：资源科学,2018

摘要：从20世纪初期承载力概念提出,到21世纪作为描述发展限制的重要工具,从理论到实践,资源环境承载力研究走过百年,已成为衡量区域可持续发展的重要判据。本文简要回顾了资源环境承载力概念的源起与发展;系统梳理了从土地资源承载力、水资源承载

力、环境承载力(容量),到资源环境承载力的研究进程;科学评述了基于生态足迹与虚拟土地、水足迹与虚拟水和能值分析与虚拟能量等方法开展的资源环境承载力研究的跨世纪进展。研究认为:资源环境承载力研究尚未形成一套统一的理论与方法体系,且研究结果的客观性与可比性一直存有争议。鉴于此,资源环境承载力研究应从理论到方法、从实践到应用,切实加强基础理论与承载机理、阈值率定与综合计量、技术标准与技术规范、定量评价与系统集成研究,以促进资源环境承载力研究的标准化与规范化、数字化与系统化,最终满足实用化与业务化的国家需求。

链接:

http://agri.ckcest.cn/ass/b9c31daf-cf0c-4668-94a0-a63369b7f883.pdf

5．中国农业资源环境透视——问题与建议

作者：鲁春霞; 成升魁; 徐增让; 刘立涛; 郭金花; 黄绍琳

文献源：科技导报,2018

摘要：农业资源环境是保障食物供给的物质基础。改革开放以来,随着土地承包制和市场经济的发展,中国农业生产快速增长,农产品生产规模和产品多样化达到前所未有的水平。然而高投入、高消耗、高污染的农业生产使中国付出了巨大的资源环境代价。本文从区域尺度分析了4种颇为突出的区域农业资源环境问题:1)东北地区旱田改水田规模的持续扩大加剧了区域水资源压力并产生了负面生态影响;2)华北平原农业生产中水资源和化肥等大量投入导致地下水位下降和水环境污染等资源环境问题;3)在工业化和城镇化快速发展进程中,南方土壤酸化和重金属污染问题突出并对食品安全产生影响;4)西北干旱半干旱地区生态屏障维护与粮食生产之间的关系协调问题。最后提出了农业资源环境可持续利用的建议,即加强区域农业资源优化配置和高效利用、系统推进农业环境污染治理与生态修复、强化全球农业资源利用战略。

链接:

http://agri.ckcest.cn/ass/8755b2ba-b621-4ac8-9958-a605d8c1d1fa.pdf

6．A hybrid land-water-environment model for identification of ecological effect and risk under uncertain meteorological precipitation in an agroforestry ecosystem

作者：Xueting Zeng; Tienan Li; Cong Chen; Zhenjiang Si; Guohe Huang; Ping Guo; Xiaowen Zhuang

文献源：Science of the Total Environment,2018

摘要：In this study, a hybrid land-water-environment (LWE) model is developed for identifying ecological effect and risk under uncertain precipitation in an agroforestry

ecosystem. A simulation-based fuzzy-stochastic programming with risk analysis (SFSR) method is used into LWE model to reflect the meteorological impacts; meanwhile, it also can quantify artificial fuzziness (e.g., risk attitude of policymaker) and natural vagueness (e.g., ecological function) in decision-making. The developed LWE model with SFSR method is applied to a practical agroforestry ecosystem in China. Results of optimized planting scale, irrigative water schedule, pollution mitigation scheme, and system benefit under changed rainfall, precise risk-adoption and vague ecological function are obtained; meanwhile their corresponding ecological effects and risks are analyzed. It found that current LWE plans could generate massive water deficits (e.g., 23.22 × 106 m^3 in crop irrigation and 26.32 × 106 m^3 in forest protection at highest) due to over-cultivation and excessive pollution discharges (e.g., the highest excessive TP and TN discharges would reach 460.64 and 15.30 × 103 ton) due to irrational fertilization, which would increase regional ecological risks. In addition, fifteen scenarios associated with withdrawing cultivation and recovering forest based on regional environment heterogeneity (such as soil types) have been discussed to adjust current agriculture-environment policies. It found that, the excessive pollution discharges (TN and TP) could be reduced 12.95% and 18.32% at highest through ecological expansions, which would generate higher system benefits than that without withdrawing farmland and recovering forest. All above can facilitate local policymakers to modulate a comprehensive LWE with more sustainable and robust manners, achieving regional harmony between socio-economy and eco-environment.

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http://agri.ckcest.cn/ass/ef329034-98aa-4026-bc5b-2f9cf4ff80ce.pdf

7．Virtual water flows in the international trade of agricultural products of China

作者：Yu Zhang; Jinhe Zhang; Guorong Tang; Min Chen; Lachun Wang

文献源：Science of the Total Environment,2018

摘要：With the rapid development of the economy and population, water scarcity and poor water quality caused by water pollution have become increasingly severe in China. Virtual water trade is a useful tool to alleviate water shortage. This paper focuses on a comprehensive study of China's international virtual water flows from agricultural products trade and completes a diachronic analysis from 2001 to 2013. The results show that China was in trade surplus in relation to the virtual water trade of agricultural products. The exported virtual water amounted to 29.94 billion m^3/yr. while 155.55 billion m^3/yr. was

embedded in imported products. The trend that China exported virtual water per year was on the decline while the imported was on a rising trend. Virtual water trade of China was highly concentrated. Not all of the exported products had comparative advantages in virtual water content. Imported products were excessively concentrated on water intensive agricultural products such as soya beans, cotton, and palm oil. The exported virtual water mainly flowed to the Republic of Korea, Hong Kong of China and Japan, while the imported mainly flowed from the United States of America, Brazil and Argentina. From the ethical point of view, the trade partners were classified into four types in terms of “net import” and “water abundance”: mutual benefit countries, such as Australia and Canada; unilateral benefit countries, such as Mongolia and Norway; supported countries, such as Egypt and Singapore; and double pressure countries, such as India and Pakistan. Virtual water strategy refers to water resources, agricultural products and human beings. The findings are beneficial for innovating water resources management system, adjusting trade structure, ensuring food security in China, and promoting the construction of national ecological security system.

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http://agri.ckcest.cn/ass/828aea98-6f99-4672-b37f-fb53df2522f9.pdf

8．Infrastructure development and its influence on agricultural land and regional sustainable development

作者：Stanisław Bacior; Barbara Prus

文献源：Ecological Informatics,2018

摘要：The ongoing technological transformation, socially accepted and corresponding to the requirements, becomes relevant for regional development. Understanding this development requires an insight into the related driving forces. One of those, which has induced both direct and indirect changes to land use, and accelerated the urban growth, is the construction of motorways. Many studies have analysed the impact of motorway construction on changes in the landscape structure and urban land cover as well as in biological and landscape diversity, but relatively less attention has been paid to determining the impact of the infrastructure development on agricultural land and sustainable development of rural areas. We are of the opinion that applying hypotheses on infrastructure development (motorway construction) as a driving force derived from a case study can be a way of holding a more integrative view on regional sustainable development

of rural areas, and can contribute to choosing the best variant of a motorway route. The aim of the paper is to present a theoretical framework and methodology for analysing the impact of a motorway on agricultural land and regional sustainable development. The change of land features and a decrease in their income value were determined by means of a simplified method. In the initial stage, it analyses the route of the motorway axis and determines the starting parameters, taking into account the width of the roadway, the category of lands taken over for the construction of the motorway, the layout (distribution) of plots, and the arrangement of existing roads and designed viaducts. The initial parameters were selected in order to ultimately enable the evaluation of the impact of the construction of the motorway on four main directions as well as the determination of the role of individual factors distinguished in this impact. The analysis provides a scientific basis for the understanding of sustainable development of rural areas and its protection in the spatial planning processes on local and regional levels. Establishing the changes of farms' value is necessary, among other things, to determine compensations for the losses caused by the motorway construction. It should be performed at the stage of elaborating the detailed design of the motorway, or immediately after completing the investment process.

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http://agri.ckcest.cn/ass/2dee3723-9293-4dab-91be-3d61e8fef8b3.pdf

9．Territorial capital, smart tourism specialization and sustainable regional development: Experiences from Europe

作者：JoãoRomão; BartNeuts

文献源：Habitat International,2018

摘要：This study analyses the contribution of territorial sensitive resources related to natural and cultural features (environmental dimension), innovation capabilities and specialization patterns (smart specialization) to regional sustainable development (spatial sustainability). In the context of a fast and continuous expansion of tourism activities, particular attention is given to their impacts. The results of our path model suggest that different patterns of tourism dynamics coexist in European regions and that, for those where this sector assumes larger socio-economic importance, the contribution to the achievement of the “Millennium Goals”, as proposed by the United Nations, is relatively poor. Regions particularly endowed in natural resources reveal a weak socio-economic performance, while showing high levels of specialization in tourism, based on large scale

and low value-added products and services, suggesting that new approaches to territorial design are required. This also leads to important spatial unbalances, with the most tourism-dependent European regions revealing relatively low levels of regional gross domestic product and high levels of unemployment. Despite their relatively good performance in terms of CO_2-emissions, it seems important for those regions' sustainable development to increase the value added in tourism, by reinforcing the linkages with other relevant regional economic sectors. Information and communication technologies can contribute to these achievements, through the integration of knowledge and innovations into the products and services comprising the smart tourism experiences (smart development) and their connections with related sectors (smart specialization).

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http://agri.ckcest.cn/ass/3b1bf786-e083-4d97-bd13-64012086a5c2.pdf

10. Economic corridors and regional development: The Malaysian experience

作者：Prema-chandra Athukorala; Suresh Narayanan

文献源：World Development,2018

摘要：This paper examines prerequisites for a successful inter-state economic corridor development program in a country with a federal system of government through an in-depth study of the design, implementation and the developmental impact of the Northern Corridor Economic Region (NCER) in Malaysia that encompasses the states of Penang, Kedah, Perak and Perlis. The analysis suggests that the NCER has the potential to leverage on the core strengths of the state of Penang—global connectivity, mature business eco-system with a strong presence of multinational enterprises, and sizeable talent pool—in order to redress the widening inter-regional and urban-rural development divide. However, so far, the achievements have not matched the expectations primarily because of an inherent institutional limitation of the program: failure to constitute the Northern Corridor Implementation Authority (NCIA) with adequate power and operational flexibility to achieve the overarching goal of shared growth while ensuring compliance from all stakeholders.

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http://agri.ckcest.cn/ass/deb4e4df-c200-44c6-9975-8f612e44e110.pdf