



ABSTRAK AGRICULTURE AND EXTENSION BERSUMBER DARI PANGKALAN DATA SCIENDIRECT

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BADAN PENYULUHAN DAN PENGEMBANGAN SUMBER DAYA MANUSIA PERTANIAN
BALAI BESAR PELATIHAN KESEHATAN HEWAN**

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244. The impact of ASEAN economic community, firm characteristics and macroeconomics on firm performance and firm value: An investigation of Shariah-compliant firms in Indonesia / Nikmah, Choirul; Hung, Rern-Jay. *Heliyon*244. ISSN: 2405-8440 (2024) v.10 Issue. 11p.e32740. 10

Url: <https://www.sciencedirect.com/science/article/pii/S2405844024087711>

DOI: 10.1016/j.heliyon.2024.e32740

Abstract: The ASEAN Economic Community (AEC) presents both opportunities and challenges to Shariah-compliant firms (SCF) that have particular rules concerning business activities and financial ratios following Islamic principles. The SCF has to maintain the ratio of interest-based debt to total assets as well as non-permissible income, where these restrictions may impact both firm performance and firm value, particularly in the AEC era. Therefore, the SCF has to utilize internal factors to strengthen the firm while also considering the external factor of macroeconomics. The purpose of this paper is to examine the internal factors—firm age, size and efficiency (FASE), financial leverage, foreign ownership— and macroeconomics affecting financial performance and firm value of SCFs, including the effects both pre- and post-AEC. This study applies structural equation modelling-partial least square (SEM-PLS) to analyze 103 non-financial firms that were continuously listed on the Islamic Shariah Stock Index (ISSI) from 2011 to 2020. The results showed that FASE and macroeconomics had a significant positive influence on firm performance. Moreover, financial leverage, foreign ownership and the AEC participation showed a negative effect on firm performance. In addition, there was a positive relationship between FASE and firm value, as well as firm performance and firm value of SCFs. Finally, the findings from this study may help stakeholders determine policies that involve both internal and macroeconomic situations, as well as the potential effect of the AEC on the enhancement of firm performance and firm value.

Keyword: Economic growth; ASEAN economic community; Firm value; Profitability; Shariah compliance

245. Social forestry in Southeast Asia: Evolving interests, discourses and the many notions of equity / Wong, Grace Y.; Moeliono, Moira; Bong, Indah W.; Pham, Thuy Thu; Sahide, Muhammad A.K.; Naito, Daisuke; Brockhaus, Maria. *Geoforum*245. ISSN: 0016-7185 (2020) v.117 Issue. p.246-258. 117

Url: <https://www.sciencedirect.com/science/article/pii/S0016718520302657>

DOI: 10.1016/j.geoforum.2020.10.010

Abstract: Southeast Asia has long promoted social forestry (SF) in conservation areas, fallow forests, tree plantations, areas in timber concessions and locally managed agro-forest systems, with the engagement of diverse actors and objectives. SF has evolved from early aims of empowerment and devolution of rights advocated by global reform movements, and is now reframed in the market ideal as a win-win-win endeavor for sustainable forest management, climate change mitigation and robust entrepreneurial livelihoods. Southeast Asian states have formulated numerous standardized SF programs and policies that are often linked to broader development goals and priorities, but which have not always been a 'win' for local communities in falling short to provide full tenure rights. Civil society organizations that have provided grounded perspectives on environmental justice and rights have also converged with states on entrepreneurship and market-based solutions. Meanwhile, the private sector actor that is seen as key to these solutions is conspicuously absent within the SF policy

space. Within this space of diverse and at times contradictory objectives, whose interests do SF policies serve? We examine the social forestry assemblage to investigate the different discourses, interests and agendas in the implementation of SF schemes in Indonesia, Vietnam, and the Malaysian state of Sabah. The formal SF schemes involve shifting or reinforcing old discourses around forest problems and possible solutions, territorialization processes that can lead to inequities in the exclusion of rights, participation and access, and risks exacerbating contestations and inequities in claims to forest land and resources.

Keyword: Southeast Asia; Social forestry; Actors and interests; Assemblage; Equity

246. Promoting biodiversity enrichment in smallholder oil palm monocultures – Experimental evidence from Indonesia / Romero, Miriam; Wollni, Meike; Rudolf, Katrin; Asnawi, Rosyani; Irawan, Bambang. *World Development* 246. ISSN: 0305-750X (2019) v.124 Issue. p.104638. 124

Url: <https://www.sciencedirect.com/science/article/pii/S0305750X19302864>

DOI: 10.1016/j.worlddev.2019.104638

Abstract: This study evaluates the effects of two policy instruments on the adoption of native tree planting in oil palm plantations. The first instrument is an information campaign on tree planting in oil palm. The second instrument combines the information campaign with a structural intervention that provides native tree seedlings for free. We implemented a randomized controlled trial in oil-palm growing villages in Jambi, Indonesia. Our study addresses the underlying mechanisms of behavioral change, by investigating how the policy instruments shape farmers' perceptions, intentions and actual adoption decisions. The results show that information campaigns and structural interventions can motivate tree planting among smallholder oil palm farmers in Indonesia. While both treatments have a positive and significant effect, the intervention combining information with seedling provision leads to significantly higher adoption rates, indicating that overcoming structural barriers is critical. While changes in perceptions and intentions fully mediate the effect of the information campaign on adoption, they can only partially explain the effect of the combined intervention. Facilitating easy access to high-quality inputs is critical to motivate wider adoption among large numbers of potential users.

Keyword: Oil palm; Asia; Intentions; Mediation; Tree-planting

247. REDD+ finance in Brazil, Indonesia and Vietnam: Stakeholder perspectives between 2009-2019 / Pham, Thuy Thu; Moeliono, Moira; Yuwono, Jennie; Dwisatrio, Bimo; Gallo, Patrícia. *Global Environmental Change* 247. ISSN: 0959-3780 (2021) v.70 Issue. p.102330. 70

Url: <https://www.sciencedirect.com/science/article/pii/S0959378021001096>

DOI: 10.1016/j.gloenvcha.2021.102330

Abstract: Financing REDD+ is complex, due to the need to seek answers not only to the question of who should finance REDD+, but also who should benefit from it. This paper examines the perceptions of REDD+ stakeholders in Brazil, Indonesia and Vietnam on different aspects of financing: who should

finance REDD+ and who should receive REDD+ benefits for what. Our findings show these issues are political, driven by economic considerations at national level and – despite the narrative of inclusive, participatory decision making – are largely determined by governments. Lack of finance was thereby not always considered by national policy actors to be the most significant challenge during 2010–2019; rather other issues – like lack of knowledge on REDD+ by relevant actors; ineffective coordination between state agencies, the private sector and civil society; unclear tenure rights; ineffectively addressing the main deforestation drivers; low law enforcement capacity; and unclear benefit-sharing mechanisms – have also been perceived to impede REDD+ implementation and payment distributions.

Keyword: Indonesia; REDD+; Brazil; Vietnam; Benefit-sharing; Finance

248. Inter-provincial migration and 1975–2005 regional growth in Indonesia* / Vidyattama, Yogi. *Papers in Regional Science* 248. ISSN: 1056-8190 (2016) v.95 Issue. p.S87-S106. 95

Url: <https://www.sciencedirect.com/science/article/pii/S1056819023013891>

DOI: 10.1111/pirs.12120

Abstract: Migration has been seen as an important issue in regional development worldwide. This study analyses the impact of internal migration on provincial growth in Indonesia. Applying a growth model, this study found evidence that migration played no role on regional convergence during the 1975–2005 period. However, different policies affected the signs and sizes of the estimates across sub-periods. Moreover, inter-provincial migration, especially in-migration in poorer provinces, had a positive impact on economic growth in Indonesia. 要約: 住民移動は、世界中のどこでも、地域の発展にとって重要な問題であるとみなされてきた。本論文では、インドネシアにおける住民の国内移動が州の経済成長に与える影響を分析する。本研究では成長モデルを適用したところ、住民移動は1975年から2005年にかけての地域的収束に何の役割も果たしていない事がわかった。しかし、様々な政策は、この期間内を通じて短期的には、推計値の正負と大きさを左右している。さらに、州間の住民移動、特に貧しい州間の住民移動は、インドネシアの経済成長にプラスの効果をもたらしている。 Resumen La migración se ha visto como un asunto importante en el desarrollo regional en todo el mundo. Este estudio analiza el impacto de la migración interna en el crecimiento provincial en Indonesia. La aplicación de un modelo de crecimiento en este estudio produjo pruebas de que la migración no tuvo papel alguno en la convergencia regional durante el período 1975-2005. Sin embargo, diferentes políticas afectaron las señales y los tamaños de las estimaciones en los subperíodos. Por otra parte, la migración interprovincial, y en especial la inmigración en las provincias más pobres, tuvo un impacto positivo en el crecimiento económico de Indonesia.

Keyword: Indonesia; convergence; Regional migration

249. Modern energy consumption in Indonesia: Assessment for accessibility and affordability / Hartono, Djoni; Hastuti, Sasmita Hastri; Balya, Audhi Ahmad; Pramono, Wahyu. *Energy for Sustainable Development* 249. ISSN: 0973-0826 (2020) v.57 Issue. p.57-68. 57

Url: <https://www.sciencedirect.com/science/article/pii/S0973082620302398>

DOI: 10.1016/j.esd.2020.05.002

Abstract: The Indonesian Government, in the last decade, attempted to increase modern energy consumption through the implementation of the Liquid Petroleum Gas (LPG) conversion program and the construction of numerous power generators. The attempt hoped to increase access to modern energy. This study investigates the Government modern energy projects by assessing both the accessibility and affordability of modern energy consumption in urban-rural areas and across different income level households. This study measured the changes in energy access in different household categories as well as the energy burden of each household category using descriptive statistics. The present study confirmed the roles of access and income in energy spending using multiple regression analysis. The result showed that household access to modern energy significantly increased in all household categories. However, access to rural households and low-income households still needed improvement. Besides, there was no proof of energy poverty in low-income households. The results also revealed that modern energy access, income, and head of household education were the major determinants of energy spending, especially for low-income household and rural areas. Hence, if Government wants to improve energy consumption, households are willing to consume modern energy if the supply is available. However, the education and financial ability will also be main consideration in determining energy consumption level.

Keyword: Energy consumption; Energy cost burden; Energy policy; Modern energy

250. Toward a nuanced and targeted forest and peat fires prevention policy: Insight from psychology / Trihadmojo, Bambang; Jones, Christopher R.; Prasastyoga, Bramesada; Walton, Chris; Sulaiman, Ahmad. *Forest Policy and Economics* 250. ISSN: 1389-9341 (2020) v.120 Issue. p.102293. 120

Url: <https://www.sciencedirect.com/science/article/pii/S1389934119306884>

DOI: 10.1016/j.forpol.2020.102293

Abstract: Indonesian forest and peat fires have become global concern. Not only the fires have caused regional environmental and humanitarian crises, they also have exacerbated global climate change. Radical and rapid land use change couple with irresponsible practice of clearing land through burning are key contributing factors. In response, the Indonesian government issued a strict ban on the practice. While this policy outcome continues to shortfall, it implicates traditional farmers whose subsistence depends on such a practice. This reality necessitates effort to develop a more nuanced and targeted intervention. Thus, this study examines individual's intention to clear land using fire. We surveyed 151 Indonesian traditional farmers based on the Theory of Planned Behavior (TPB), the Norm Activation Model (NAM) and past behavior. We identified the TPB, which is augmented by the past behavior and awareness of consequences, as the optimal model for explaining variance in the intention. Implications for developing more effective educational campaigns are discussed.

Keyword: Forest management; Burning; Forest and peat fires; Norm Activation Model; Theory of Planned Behavior

251. Geographical inequalities in healthcare utilisation and the contribution of compositional factors: A multilevel analysis of 497 districts in Indonesia / Mulyanto, Joko; Kunst, Anton E.; Kringos, Dionne S.. *Health & Place* 251. ISSN: 1353-8292 (2019) v.60 Issue. p.102236. 60

Url: <https://www.sciencedirect.com/science/article/pii/S1353829219309232>

DOI: 10.1016/j.healthplace.2019.102236

Abstract: Substantial inequalities in healthcare utilisation are reported in Indonesia. To develop appropriate health policies and interventions, we need to better understand geographical patterns in inequalities and any contributing factors. This study investigates geographical inequalities in healthcare utilisation across 497 districts in Indonesia and whether compositional factors – wealth, education, health insurance – contribute to such inequalities. Using data from a nationally representative Basic Health Research survey, from 2013 (N = 694,625), we applied multilevel logistic regressions, adjusted for need, to estimate associations of compositional factors with outpatient and inpatient care utilisation and to assess variability at province and district levels. We observed large variation of healthcare utilisation at district level and smaller variations at province level. Cities had higher utilisation rates than rural districts. Compositional factors contributed only modestly to geographical inequalities in healthcare utilisation. The effect of compositional factors on individual healthcare utilisation was stronger in rural areas as compared to cities and other areas with higher population densities. Unexplained district variation was substantial, comparable to that associated with health insurance. In policies to tackle inequalities in healthcare utilisation, addressing geographical factors such as service availability and infrastructures may be as important as improving compositional factors like health insurance.

Keyword: Indonesia; Compositional factors; Geography; Healthcare; Inequality; Utilisation

252. Eighty-six EU policy options for reducing imported deforestation / Bager, Simon L.; Persson, U. Martin; dos Reis, Tiago N.P.. *One Earth* 252. ISSN: 2590-3322 (2021) v.4 Issue. 2p.289-306. 4

Url: <https://www.sciencedirect.com/science/article/pii/S2590332221000579>

DOI: 10.1016/j.oneear.2021.01.011

Abstract: Summary Despite the importance of tropical forest conservation in achieving global sustainability goals and the key role of forest-risk commodity trade in driving deforestation, consumer country policy options for reducing imported deforestation have received limited scholarly attention. Drawing on gray literature and a European Commission public consultation, we identify 86 policy options for the European Union to address deforestation. We assess the political feasibility and map the “theory of change” (TOC)—the causal chain through which the policies address deforestation—for each of these policy options, identifying a trade-off between feasibility and potential impacts: information-based and cooperative policies, which dominate our sample, typically exhibit high feasibility, but mostly lack convincing TOCs, while more stringent regulatory and market-based policy options generally have lower feasibility. We propose three principles for overcoming the feasibility-impact dilemma: (1) build policies on proven TOCs, (2) use policy mixes, and (3) work with key stakeholders, supply chains, and regions.

Keyword: European Union; climate change; commodity trade; conservation policy; deforestation; forest-risk commodities; land use change; political feasibility; public policy; supply chains

253. Fairly efficient, efficiently fair: Lessons from designing and testing payment schemes for ecosystem services in Asia / Leimona, Beria; van Noordwijk, Meine; de Groot, Rudolf; Leemans, Rik. Ecosystem Services253. ISSN: 2212-0416 (2015) v.12 Issue. p.16-28. 12

Url: <https://www.sciencedirect.com/science/article/pii/S2212041614001697>

DOI: 10.1016/j.ecoser.2014.12.012

Abstract: Payment for ecosystem services (PES) is commonly defined as a market-based environmental policy instrument to efficiently achieve ecosystem services provision. However, an increasing body of literature shows that this prescriptive conceptualization of PES cannot be easily generalized and implemented in practice, and that the commodification of ecosystem services (ES) is problematic and may lead to unfair situations for relevant PES actors. This paper synthesizes case studies in Indonesia, the Philippines and Nepal to provide empirical observations on emerging PES mechanisms in Asia. Lessons learned show that fairness and efficiency objectives must be achieved simultaneously in designing and implementing a sustainable PES scheme, especially in developing country contexts. Neither fairness nor efficiency is a primary aim but an intermediate 'fairly efficient and efficiently fair' PES may bridge the gap between PES theory and practice to increase sustainable ES provision and improve livelihoods.

Keyword: Participatory approach; Asia; Community-based natural resource management; Institution and governance; Payment for ecosystem services; Pro-poor policy

254. Pathways to reduce Indonesia's dependence on oil and achieve longer-term decarbonization / Rahman, Arief; Richards, Russell; Dargusch, Paul; Wadley, David. Renewable Energy254. ISSN: 0960-1481 (2023) v.202 Issue. p.1305-1323. 202

Url: <https://www.sciencedirect.com/science/article/pii/S0960148122016913>

DOI: 10.1016/j.renene.2022.11.051

Abstract: Key challenges for Indonesia to 2050 are to reduce its dependency on fossil-based fuels and to decarbonize its energy system. This article adopts a systems approach to investigate future pathways, positing a shift from oil combustion to electricity to energize cooking stoves and vehicles. Today, electricity is predominantly generated using gas and coal. The cost-competitiveness of renewables is central to any sectoral adjustment in the nation's total primary energy supply (TPES). To study variables within the energy system, causal loop diagrams (CLDs) are constructed acknowledging three underlying elements: constraints (the energy trilemma); resource availability, oriented to physical elements and human resources (stakeholders); and the mode of regulation. Indonesia's energy market is characterized by state enterprise and price subsidies to retail consumers. We analyze the capability of private companies to drive competition among providers of renewable energy and facilitate more competitive pricing. Our results suggest that, irrespective of the composition of the TPES over the next 30 years, fossil sources will remain significant, necessitating carbon capture storage (CCS) technology as a complement to renewable energy promotion.

Keyword: Indonesia; Decarbonization; Energy policy; Market form; Oil; Systems approach

255. Going into hak: Pathways for revitalizing marine tenure rights in Indonesia / Muawanah, Umi; De Alessi, Michael; Pomeroy, Robert; Kurniasari, Nendah; Shafitri, Nensyana; Yulianty, Christina. *Ocean & Coastal Management* 255. ISSN: 0964-5691 (2021) v.215 Issue. p.105944. 215

Url: <https://www.sciencedirect.com/science/article/pii/S0964569121004270>

DOI: 10.1016/j.ocecoaman.2021.105944

Abstract: Marine conservation in Indonesia is complicated by the 1,000s of islands and nearly as many languages and cultures that stretch across this 3200 mile (5100 km) country. Secure marine tenure has improved the prospects for sustainable fishing and livelihoods in many places around the world, and there are some traditional, historical examples of tenure in Indonesia. Where tenure institutions exist, however, they have typically been undermined by colonial and post-colonial policies, and in the vast majority of places, marine tenure and other rights (hak) to marine resources have either been extinguished or never existed. The issue is fraught: tenure rights may provide communities with the security to invest in and manage their fishery resources for long-term sustainability, but there is also a history in Indonesia of disenfranchisement in the name of conservation. This paper considers pathways to revitalizing marine tenure rights in Indonesia, documenting the evolution and current status of marine tenure rights in Indonesia, existing legal and policy frameworks that support marine tenure rights, and challenges to marine tenure rights. The paper concludes with recommendations for strengthening and expanding marine tenure rights in Indonesia and prospects for the development of a national policy on marine tenure rights.

Keyword: Indonesia; Marine tenure right; Revitalization; Small scale fisheries

256. Priming adaptation pathways through adaptive co-management: Design and evaluation for developing countries / Butler, J.R.A.; Suadnya, W.; Yanuartati, Y.; Meharg, S.; Wise, R.M.; Sutaryono, Y.; Duggan, K.. *Climate Risk Management* 256. ISSN: 2212-0963 (2016) v.12 Issue. p.1-16. 12

Url: <https://www.sciencedirect.com/science/article/pii/S2212096316000024>

DOI: 10.1016/j.crm.2016.01.001

Abstract: Mainstreaming climate change and future uncertainty into rural development planning in developing countries is a pressing challenge. By taking a complex systems approach to decision-making, the adaptation pathways construct provides useful principles. However, there are no examples of how to operationalise adaptation pathways in developing countries, or how to evaluate the process. This paper describes a 4year governance experiment in Nusa Tenggara Barat Province, Indonesia, which applied adaptive co-management (ACM) as a governance approach to 'prime' a transformation to adaptation pathways-based development planning. The project's Theory of Change (ToC) consisted of three causally-linked phases which mirrored the evolutionary stages of ACM: priming stakeholders, enabling policies and programs, and implementing adaptation. The first phase established a trans-disciplinary research team to act as facilitators and brokers, a multi-stakeholder planning process demonstrating adaptation pathways practice, and trialling of 'no regrets' adaptation strategies in case study sub-districts. A participatory evaluation method was designed to test the ToC's

assumptions and measure ACM outcomes. Stakeholder interviews at the project's closure indicated that through ACM, stakeholders had been successfully primed: leaders emerged, trust, cross-scale social networks and knowledge integration grew, communities were empowered, and innovative adaptation strategies were developed and tested. However, there was limited evidence of institutional change to existing planning processes. This was attributed to the absence of policy windows due to ineffective and insufficient time for political engagement, and the fluid institutional environment caused by a national decentralisation policy. To enhance the priming of adaptation pathways into development planning under these conditions, three recommendations are made: (1) provide long term support for emergent leaders and brokers to become 'policy entrepreneurs' who can capitalise on policy windows when they appear, (2) establish and support local livelihood innovation niches as 'bridgeheads' for ACM, and (3) maintain participatory evaluation amongst primary stakeholders to re-kindle ACM.

Keyword: Indonesia; Governance; Research for development; Climate compatible development; Social learning; Theory of Change

257. The bilocal migrant: Economic drivers of mobility across the rural-urban interface in Central Java, Indonesia / Rudiarto, Iwan; Hidayani, Rizqa; Fisher, Micah. *Journal of Rural Studies* 257. ISSN: 0743-0167 (2020) v.74 Issue. p.96-110. 74

Url: <https://www.sciencedirect.com/science/article/pii/S0743016719300087>

DOI: 10.1016/j.jrurstud.2019.12.009

Abstract: The trends of bilocality – in which an individual will spend part of the year in a rural area, and the other in an urban area – presents a unique and increasingly common manifestation of the circular migrant. In this paper, we explore the dynamics of bilocal migrants in Indonesia from a Central Java city and examine migrant points of origin in terms of their characteristics, mobility patterns, and remittance uses. Data were collected from 105 sample cases among those classified as migrants distributed across the study area. We apply the Flocktracker software for our study, which is a mobile-based application that combines online questionnaires and provides associated locational attributes. Most of the bilocal migrants continue to migrate as a strategy to address the lack of income in rural areas. Migrants not only circulate between two destinations from their rural origins to one city, but also increasingly gravitate to other cities as a multiple destination strategy depending on networks and employment availability. A key finding of this study is that overall, although migration to urban areas supports rural household incomes, it contributes in limited ways to the commonly anticipated rural development outcomes. This suggests that policy interventions are mistaking job creation and remittances as a proxy for rural development, whereas policy priorities should be looking beyond job creation to identify other ways to support development in rural areas.

Keyword: Indonesia; Rural development; Bilocal migrants; Mobility pattern; Remittance

258. The impact of a household biogas programme on energy use and expenditure in East Java / Bedi, Arjun S.; Sparrow, Robert; Tasciotti, Luca. *Energy Economics* 258. ISSN: 0140-9883 (2017) v.68 Issue. p.66-76. 68

Url: <https://www.sciencedirect.com/science/article/pii/S0140988317303092>

DOI: 10.1016/j.eneco.2017.09.006

Abstract: Biogas has been promoted as a renewable, cleaner and cheaper energy source. While there are several initiatives promoting the use of biogas, credible analyses of its effects on the use of alternative energy sources and energy related expenditure are limited. This study uses panel data from households engaged in dairy farming in rural East Java to assess the impact of a household level programme, which promotes the construction of digesters that produce biogas, on energy use and expenditures. Both a difference-in-difference analysis and a pipeline comparison show that the use of digesters leads to a sharp reduction in energy related expenditures and a reduction in the use of firewood and liquefied petroleum gas. However, without subsidies, the payback period of between 11 and 14 years, albeit based only on reductions in energy costs accruing from investing in a digester, is perhaps too long to justify the investment.

Keyword: Indonesia; Renewable energy; Biogas; Energy policy

259. Fire economy and actor network of forest and land fires in Indonesia / Purnomo, Herry; Shantiko, Bayuni; Sitorus, Soaduon; Gunawan, Harris; Achdiawan, Ramadhani; Kartodihardjo, Hariadi; Dewayani, Ade Ayu. *Forest Policy and Economics* 259. ISSN: 1389-9341 (2017) v.78 Issue. p.21-31. 78

Url: <https://www.sciencedirect.com/science/article/pii/S1389934117300023>

DOI: 10.1016/j.forpol.2017.01.001

Abstract: Forest and land fires are a recurrent phenomena in Indonesia and little progress has been made in reducing their occurrence. The mineral and peat fire in 2015 burnt 2.6 million hectares, mostly in the provinces of Riau, South Sumatra, Jambi, Central Kalimantan, West Kalimantan and Papua, and costed USD16.1 billion as estimated by the World Bank in 2015. Although only 30% of the fire was on peatland area, it had a much higher impact than that on mineral land because of its fire density. Fires in Indonesia are caused by human both individually or collectively. Indonesian President Joko Widodo has committed to reducing fire during his term of office. Government actions have focused on fire suppression, biophysical and technological issues such as canal blocking and an early warning system. Significant actions on the underlying causes of fires such as providing economy incentives for land preparation without burning are rare. We conducted a political economy study of fire and haze to provide policy makers with an understanding of the economic, social and political causes of forest and land fires. The study focused on four districts in Riau Province, which experienced fires and forest transition to palm oil plantations. We collected social, policy and economy data from survey in ex post fire sites and carried out focus group discussions with the key stakeholders. We implemented value chain and social network analyses to the collected data. We found a diversity of actors were involved and gaining benefits from fires. We found that farmer group organizers obtained enormous benefits, as much as USD486 per hectare. These actors influence decision-making processes through their patronage network for their own interests. The networks provide power, support, protection and access to various resources. To effectively reduce fire, governments need to disempower these farmer group organizers through law and policy.

Keyword: Political economy; Fire prevention; Network; Patronage; Value chains

260. Narrowing the gap between local standards and global best practices in bauxite mining: A case study in Malaysia / Kuan, Seng How; Ghorbani, Yousef; Chieng, Sylvia. *Resources Policy* 260. ISSN: 0301-4207 (2020) v.66 Issue. p.101636. 66

Url: <https://www.sciencedirect.com/science/article/pii/S0301420719307834>

DOI: 10.1016/j.resourpol.2020.101636

Abstract: In mining the concept of sustainable development often encounters a paradoxical meaning as numerous mines in the past have closed due to exhausted amounts of ores. Despite the paradox, sustainable development and mining can be made compatible, if mining activities are carried out responsibly and sustainably. This holds true especially in the developing world where illegal and unregulated mining is still being practiced. In Malaysia, annual production of bauxite ore increased drastically from 208,770 tonnes in 2013, to 962,799 tonnes in 2014. The increase stemmed primarily from Indonesia banning exports of bauxite in 2014 to boost its own aluminium smelting industry. This led China to suffer low bauxite supply to meet its national aluminium production demand. Subsequently, mining companies flocked to the hills around Kuantan, Malaysia which host large amounts of low-grade bauxite where the ore is procured and exported to China via seaway. The immediate spike in bauxite production came with environmental and health consequences for residents due to unregulated rampant mining. Consequently, the authorities imposed a temporary moratorium on bauxite mining from Jan 15, 2016 with exceptions for exports of stockpiled bauxite. As a result, production in 2016 dropped to 342,924 tonnes from a peak of 7,164,956 tonnes in 2015. After extending the moratorium nine times, the government announced recently that there would be no further extension and mining could resume in April 2019 with new standard operating procedures (SOP). This work analyses the gap between local standards and global best practices and discovers a disconnect between the two, largely centred around the area of environmental management and performance. The work also elucidates the weaknesses in the current SOP and strategies are proposed to resolve these shortcomings. Recommendations are made to bring Malaysian bauxite mining practices to international standards by stressing on improved sustainability indicators, policy provisions and data transparency.

Keyword: Malaysia; Economic; Bauxite; Bauxite mining SOP; Environmental and social impacts; Sustainable mining

261. Impact of oil palm expansion on the provision of private and community goods in rural Indonesia / Krishna, Vijesh V.; Kubitza, Christoph. *Ecological Economics* 261. ISSN: 0921-8009 (2021) v.179 Issue. p.106829. 179

Url: <https://www.sciencedirect.com/science/article/pii/S0921800920305127>

DOI: 10.1016/j.ecolecon.2020.106829

Abstract: Curtailing deforestation and the negative environmental and social externalities of oil palm expansion in the tropics requires a clear understanding of the associated economic benefits. Through analyzing regency-level panel data for 2005–2014 from rural Indonesia, we find that oil palm expansion has had a robust and positive impact on the provision of private goods (i.e., amenities owned and benefited by individual households), although not on the provision of most community

goods (i.e., amenities owned by the community or the government and benefited by several households in the community). One possible reason for the weaker impact on the creation of community goods is the absence of differential government spending in the regencies cultivating oil palm. Policies that aim to regulate oil palm expansion should take into consideration the positive effects that the crop has on rural livelihoods through enabling access to private goods. On the other hand, the central and regional governments should not assume that the development of rural infrastructure can be instigated solely by the expanding plantation sector.

Keyword: Land-use change; 'Potensi Desa' (PODES); Community goods; Impact estimation; Inclusive development; Private goods

262. Developing a framework to quantify potential Sea level rise-driven environmental losses: A case study in Semarang coastal area, Indonesia / Mehvar, Seyedabdolhossein; Filatova, Tatiana; Syukri, Ifdlol; Dastgheib, Ali; Ranasinghe, Roshanka. *Environmental Science & Policy* 262. ISSN: 1462-9011 (2018) v.89 Issue. p.216-230. 89

Url: <https://www.sciencedirect.com/science/article/pii/S1462901118301862>

DOI: 10.1016/j.envsci.2018.06.019

Abstract: Climate change triggers major alterations to coastal zones worldwide. Quantification of these adverse impacts to coastal ecosystems is often done on a coarse scale of global regions. Consistent local scale estimates of physical impacts on ecosystems and monetary assessment of associated losses are scarce, especially in developing countries. With aim of facilitating such assessment, which is increasingly required, here we propose a coherent three-step framework and subsequently apply it to quantify potential sea level rise-driven alterations in the monetary value of ecosystem services in the coastal area of Semarang in Indonesia. Within this framework, we (1) quantify the present value of coastal ecosystem services by using economic valuation techniques; (2) identify the potential impacts of relative sea level rise (RSLR)-induced inundation on ecosystem services (for the year 2100 inundation scenarios); and (3) monetize these impacts by developing a novel scenario-based approach. The results show that full inundation (scenario A with 4 m RSLR) poses a median loss of 90% (US\$ 2.8 – 3.5) and 25% (US\$ 90 – 113) to the present art and fishery values per hectare, while amenity service is expected to lose upto 50% (US\$ 3700 – 5400) of its present value. Additionally, recreation value of the coastal ecosystems in three selected sites (Marina and Maron beaches, and Plumbon estuary) will decrease by 70% (US\$ 15,460 – 19,820) per hectare. However, in scenario B (RSLR of 1.1 m) with a 50% inundated area, these losses are estimated approximately 40% less than for scenario A. It is expected that researchers and policy makers may apply this approach in their areas of interest to gain a better understanding of the likely costs of sea level rise-driven environmental damages along coasts, ultimately contributing to the sustainable management of coastal environment in Indonesia and possibly in other developing countries.

Keyword: Climate change; Economic valuation; Coastal ecosystems; Environmental damage; Semarang

263. Comparative development benefits from small and large scale mines in North Sulawesi, Indonesia / Langston, James Douglas; Lubis, Muhammad I.; Sayer, Jeffrey A.; Margules, Chris; Boedhihartono, Agni Klintuni; Dirks, Paul H.G.M.. *The Extractive Industries and Society* 263. ISSN: 2214-790X (2015) v.2 Issue. 3p.434-444. 2

Url: <https://www.sciencedirect.com/science/article/pii/S2214790X15000519>

DOI: 10.1016/j.exis.2015.02.007

Abstract: We assess the opportunities and threats posed by small and large-scale mining in Eastern Indonesia. Here, both activities coexist in one landscape: in the Bitung and North Minahasa Districts of North Sulawesi. Each is associated with different development pathways. Both scales of mining have been controversial and are criticized for their environmental and socio-economic impacts. Small-scale mining contributes more to the local economy encouraging local entrepreneurship but yields a lower total financial return. Large-scale mining provides better job security and safer working conditions for employees, but any benefits of capital transformation do not accrue locally. Policy should focus on the formalization of small-scale mining and pay closer attention to the impact of large-scale mining on local communities. The governance of both scales of mining would benefit from a 'landscapes approach' to negotiating conservation and development trade-offs.

Keyword: Indonesia; Livelihoods; Gold mining; Large scale mining; Small scale mining

264. Estimating the market share of electric motorcycles: A system dynamics approach with the policy mix and sustainable life cycle costs / Yuniaristanto; Sutopo, Wahyudi; Hisjam, Muhammad; Wicaksono, Hendro. *Energy Policy* 264. ISSN: 0301-4215 (2024) v.195 Issue. p.114345. 195

Url: <https://www.sciencedirect.com/science/article/pii/S0301421524003653>

DOI: 10.1016/j.enpol.2024.114345

Abstract: Introducing electric vehicles is critical to maintaining air quality and reducing carbon emissions. The Indonesian government has issued several regulations to stimulate the diffusion of electric vehicles. This research attempts to forecast the electric vehicle market share, especially electric motorcycles, by involving the policy mix and sustainable life cycle costs. We propose a system dynamics approach that takes into account a policy mix including 0% down payment without credit interest subsidies, tax abolition, expansion of charging station network, and sustainable life cycle costs, i.e., total cost of ownership, social, and environment. The system dynamics model has four modules: the electric motorcycle cost, the conventional motorcycle cost, the economy module, and the consumer market. The simulation results show that the electric motorcycle market share will increase positively in 2021–2030, reaching 5.7% in 2030. Based on the scenario simulation results, providing more charging stations and vehicle tax abolition can significantly boost the market share of electric motorcycles in Indonesia. The study provides valuable insights for policymakers in formulating more appropriate policy instruments to promote electric vehicle diffusion in Indonesia.

Keyword: System dynamics; electric motorcycles; Market share; Policy mix; Sustainable life cycle costs

265. Blue carbon: A new paradigm of mangrove conservation and management in Indonesia / Sidik, Frida; Lawrence, Anissa; Wagey, Tonny; Zamzani, Franky; Lovelock, Catherine E.. *Marine Policy* 265. ISSN: 0308-597X (2023) v.147 Issue. p.105388. 147

Url: <https://www.sciencedirect.com/science/article/pii/S0308597X22004353>

DOI: 10.1016/j.marpol.2022.105388

Abstract: Indonesia is the largest archipelagic country in the world and has vast natural resources. In the maritime sector, efforts to realize the sustainability of natural resources in coastal ecosystems have focused on mangroves and seagrass meadows, also known as blue carbon ecosystems, that have an important role in regulating the Earth's climate. The need for ecosystem-based climate change mitigation combined with economic recovery and improved environment conditions has shifted the motivation and escalated mangrove restoration efforts in Indonesia. As the richest mangrove nation with the greatest mangrove carbon stocks in the world, recently Indonesia has taken significant steps in the land use sector to reduce emissions by acknowledging the 'true' value of mangrove carbon and setting priorities for mangrove conservation and restoration within Indonesia's climate actions. This paper reviews opportunities and challenges in mainstreaming mangrove blue carbon into policy in Indonesia. We evaluate the gaps in regulations and policies and propose pathways for the national blue carbon action. As mangroves are embedded in both forestry and marine sectors and the responsibilities for management lies within several government ministries, an integrated framework is suggested to support the national blue carbon strategy. The Indonesia Blue Carbon Strategy Framework (IBCSF) encompasses three main elements that should be considered in order to address challenges and seize opportunities in blue carbon: coordination, policy and funding.

Keyword: Indonesia; Climate change; Mitigation; Climate policy; Mangrove restoration

266. Toward a policy mix in conservation governance: A case of Gunung Palung National Park, West Kalimantan, Indonesia / Kubo, Hideyuki; Wibawanto, Ari; Rossanda, Dicko. *Land Use Policy* 266. ISSN: 0264-8377 (2019) v.88 Issue. p.104108. 88

Url: <https://www.sciencedirect.com/science/article/pii/S0264837718309323>

DOI: 10.1016/j.landusepol.2019.104108

Abstract: This paper aims to demonstrate the effectiveness of articulating a policy mix in conservation governance noting that various conservation policy instruments are currently under implementation elsewhere in tropical regions. However, an approach of strategically combining these policy instruments in their application as a policy mix is still limited. The paper finds, by referring to the case of Gunung Palung National Park, Indonesia, that interactions of different policy instruments can produce either positive or negative outputs depending on their processes so that a strategic coordination of policy instruments becomes essential. Also, non-conservation policy instruments for economic or business development under implementation by various stakeholders such as local governments or private companies sometimes have a significant impact on conservation governance. Therefore, incorporating such instruments into a policy mix should be part of strategic coordination. To realize an effective policy mix for mitigating anthropogenic disturbance on biodiversity and forest ecosystems, adopting a parallel approach of overall policy coordination through a multi-stakeholder

platform and field-based experimentation of policy interactions prior to their scaling-up are suggested.

Keyword: Tropical forest; Policy mix; Conservation governance; Multi-stakeholder platform; Policy interactions

267. Modeling Customer Satisfaction with the Service Quality of E-Money in Increasing Profit of PT. Telekomunikasi Indonesia / Octabriyantiningtyas, Dhyna; Suryani, Erma; Jatmiko, Andriyan Rizki. *Procedia Computer Science* 267. ISSN: 1877-0509 (2019) v.161 Issue. p.943-950. 161

Url: <https://www.sciencedirect.com/science/article/pii/S1877050919319143>

DOI: 10.1016/j.procs.2019.11.203

Abstract: E-money is an embodiment of a modern banking system that uses a means of payment using cards or applications that are already connected to a bank account. Every year e-money users increase significantly, but the increase is not accompanied by an increase in transactions made using e-money. Last year, it was noted that e-money users were only 35% active. Some clinical studies have established an assessment of service quality, there are several dimensions that are assessed according to the topic of the study. The dimensions of service quality used in this study are dimensions of ease of use, reliability, responsiveness, privacy, and security. It is important to develop a systems analysis approach that can be used for the development and evaluation of service quality, both at the tactical and strategic level. This study aims to present a taxonomic analysis of the dynamic system approach for modeling and simulating customer satisfaction on the quality of e-money services. By using a dynamic system, a model can be drawn that describes the relationship of dimensions on service quality, so that it can be used as a reference to create new policies in order to increase customer satisfaction. The results of this modeling are subjective frameworks to assist companies in making policies that are suitable for increasing customer satisfaction and loyalty.

Keyword: Customer Satisfaction, E-Money; Service Quality; System Dynamics

268. Greening the Belt and Road Initiative: Evidence from emergy evaluation of China's provincial trade with ASEAN countries / Tian, Xu; Sarkis, Joseph; Chen, Wei; Geng, Yong; Pan, Haozhi; Liu, Zuoxi; Ulgiati, Sergio. *Fundamental Research* 268. ISSN: 2667-3258 (2024) v.4 Issue. 2p.379-393. 4

Url: <https://www.sciencedirect.com/science/article/pii/S2667325822004393>

DOI: 10.1016/j.fmre.2022.11.007

Abstract: The Belt and Road Initiative (BRI) is a central policy within China's regional development and foreign trade strategy. Traditional trade has typically depended on economic valuation of resources, while the embedded environmental value is rarely considered. This situation exists in most BRI trade evaluations. To address BRI environmental sustainability issues, we consider the role of pivotal Chinese provinces and their key trade partners (ASEAN countries) as an illustration for the environmental value of resource exchanges. Emergy accounting is used as the valuation tool for a sample period of seventeen years. Key results include: (1) Emergy valuations show sustainability of

sample provinces decreased over time; (2) ASEAN countries such as Indonesia, Malaysia, Singapore, Thailand, and Vietnam play significant resource roles for provincial economic systems; (3) Diverse trends in trade between pivotal provinces and ASEAN countries resulted in an unbalanced trade structure from trade. Policy implications are proposed to promote a more globally sustainable and fair trade using BRI as an established trade policy.

Keyword: Environmental sustainability; Belt and road initiative; Emergency; International trade; Province

269. Involving local fishing communities in policy making: Addressing Illegal fishing in Indonesia / Chapsos, Ioannis; Koning, Juliette; Noortmann, Math. Marine Policy 269. ISSN: 0308-597X (2019) v.109 Issue. p.103708. 109

Url: <https://www.sciencedirect.com/science/article/pii/S0308597X19300399>

DOI: 10.1016/j.marpol.2019.103708

Abstract: Illegal, Unreported and Unregulated (IUU) fishing has been identified by the UN as one of the seven major threats to global maritime security; it causes loss of economic revenue, severe environmental damage, and far-reaching livelihood implications for coastal communities. Indonesia, by far the biggest archipelagic state, faces enormous challenges in all aspects of IUU fishing and addressing those is one of the current Indonesian Government's top priorities. This article addresses the under-researched dimension of how IUU fishing affects fishing communities. With the use of collage making focus groups with fishermen from different Indonesian fishing communities, the research highlights the interrelated environmental (depletion of resources), socio-economic (unbridled illegal activities at sea), cultural (favouritism) and political (weak marine governance) dimensions of IUU fishing as experienced at the local level. However, the research also indicates a strong will by fishermen to be seen as knowledge agents who can help solve the problem by better dissemination of information and cooperation between the local government(s) and the fishing communities. The article concludes by arguing for the involvement of local fishing communities in national and international policy making that addresses IUU fishing.

Keyword: Indonesia; Collage making; Illegal fishing; Local fishing communities; Maritime security

270. Unleashing the potential of mobile broadband: Evidence from Indonesia's underdeveloped regions on its role in reducing income inequality / Ariansyah, Kasmad; Barsei, Adhityo Nugraha; Syahr, Zulfia Hanum Alfi; Sipahutar, Nova Yulanda Putri; Damanik, Marudur Pandapotan; Perdananugraha, Gonang May; Dunan, Amri; Nupikso, Daru; Darmanto; Hidayat, Dayat; Mudjiyanto, Bambang; Hermawati, Istiana; Su. Telematics and Informatics 270. ISSN: 0736-5853 (2023) v.82 Issue. p.102012. 82

Url: <https://www.sciencedirect.com/science/article/pii/S073658532300076X>

DOI: 10.1016/j.tele.2023.102012

Abstract: Although numerous studies have explored the relationship between information and communication technology (ICT) and socioeconomic development, limited research has focused on the impact of ICT infrastructure expansion on income distribution. This study aims to fill this research gap by investigating the effect of mobile broadband network coverage on income inequality in underdeveloped regions of Indonesia using unbalanced panel data encompassing 122 second-level subnational regions over the period from 2018 to 2021. This study utilizes map charts to visually depict the disparities in mobile broadband coverage and income inequality across the selected regions and ordinary least squares (OLS) regression on the pooled panel data to estimate the relationship between the two variables. The findings reveal an inverted U-shaped relationship between mobile broadband coverage and income inequality, indicating an adverse effect on inequality during the early stages of network deployment that persists until coverage reaches approximately 60 percent of the population area. Beyond this threshold, the effect becomes favorable in reducing inequality. The findings of this study remain robust even after accounting for potential biases, utilizing fixed and random effect models, and disaggregating the data for the pre- and during-pandemic periods. However, a minor discrepancy in statistical significance is observed when the dataset is disaggregated by the level of regional development. The implications of these findings are discussed, providing theoretical insights and policy/practical implications for addressing income inequality.

Keyword: Indonesia; Income inequality; ICT; Inverted U-shaped; Mobile broadband; Nonlinear

271. The Role of Institutional Ownership and Industry Characteristics on the Propensity to Pay Dividend: An Insight from Company Open Innovation / Martono, S.; Yulianto, Arief; Witiastuti, Rini Setyo; Wijaya, Angga Pandu. *Journal of Open Innovation: Technology, Market, and Complexity* 271. ISSN: 2199-8531 (2020) v.6 Issue. 3p.74. 6

Url: <https://www.sciencedirect.com/science/article/pii/S2199853122005674>

DOI: 10.3390/joitmc6030074

Abstract: ABSTRACT The purpose of this study is to test the free cash flow agency theory hypothesis; namely, (a) whether differences in industrial sector affect a company's propensity to pay dividends, and (b) whether institutional ownership is able to substitute for the propensity to pay dividends as a bonding mechanism. The analysis uses logistic regression to explore the existence of institutional ownership as a substitute for paying cash dividends in companies belonging to different industrial sectors. The results show that companies in the manufacturing sector have a greater propensity to pay dividends compared to those in non-manufacturing sectors. The results also indicate that low institutional ownership, as an external monitoring mechanism, can substitute for increasing the propensity to pay dividends. Overall, the results are consistent with implications in dividend policy. The results support the notion that the propensity to pay dividends accommodates different behavioral factors, considering sectoral differences. In addition, the results illustrate the relevance of alternative theories in explaining dividend policy from the perspective of agency theory. The results show that sectoral comparisons, in addition to institutional ownership factors, play important roles in the propensity of Indonesian companies to pay dividends. This study shows that each industry sector has different income characteristics, which affect the differences in propensity to pay dividends.

Keyword: industry sectors; Institutional ownership; propensity to pay dividend

272. Holding social forestry hostage in Indonesia: Contested bureaucracy mandates and potential escape pathways / Maryudi, Ahmad; Sahide, Muhammad Alif K.; Daulay, Muhammad H.; Yuniati, Dhany; Syafitri, Wildan; Sadiyo, Suryanto; Fisher, Micah R.. *Environmental Science & Policy* 272. ISSN: 1462-9011 (2022) v.128 Issue. p.142-153. 128

Url: <https://www.sciencedirect.com/science/article/pii/S146290112100335X>

DOI: 10.1016/j.envsci.2021.11.013

Abstract: The government of Indonesia continues to commit to social forestry as one of its cornerstone rural development policies. Social forestry mechanisms aim to grant legal rights/ permits to groups of local communities to manage previously inaccessible state forests, with the dual aims of improving the livelihoods of rural communities and encouraging participation in forest rehabilitation. Explicit policy targets include the allocation of 12.7 million hectares of state forests for local communities through a suite of social forestry project mechanisms. While the number of social forestry licenses have increased markedly over the past few years, current social forestry initiatives still fall short of meeting the ambitious land area targets. More importantly, increasing evidence points to social forestry policy outcomes only partially serving its initial intended promises. This paper helps to explain these partial outcomes and unmet promises from the perspective of social forestry bureaucracy structures and designs. We found that despite the core social forestry bureaucracy undergoing substantial expansion, several other bureaucracies also channeled their interests into the realm of social forestry policy. These other bureaucracies do not necessarily fit within the intended goals of social forestry policy. Indeed, several bureaucracies continue to hold social forestry policy implementation hostage through other forestry mandates, which results in an institutional chokehold on key social forestry interests. These other bureaucracies even introduced models to redirect social forestry initiatives by retrofitting mandates into their own policy priorities. To address these increasing roadblocks to achieving social forestry policy designs, this paper outlines and proposes a more simplified bureaucratic structure to assist in the implementation of a social forestry policy more in line with its intended goals. Specifically, tasks and responsibilities could be transferred to a single bureaucracy that has mechanisms more closely connected to local people, such as those already envisioned and established in the form of forest management units.

Keyword: Bureaucratic politics; Social forestry; Authority; Community forestry; Fragmented bureaucracy

273. A framework to assess the impacts of corruption on forests and prioritize responses / Meehan, Fiona; Tacconi, Luca. *Land Use Policy* 273. ISSN: 0264-8377 (2017) v.60 Issue. p.113-122. 60

Url: <https://www.sciencedirect.com/science/article/pii/S0264837716311516>

DOI: 10.1016/j.landusepol.2016.10.021

Abstract: Corruption has often been blamed for causing deforestation, however, the evidence is mixed. The paper develops a framework to assess the impacts of corruption on forests and prioritize policy responses. Rather than relying just on a theoretical description of corruption, the framework is developed by analyzing how corruption manifests itself on the ground in the forest sector in Indonesia. The framework considers the potential impacts of corruption at different stages of forest

management. We argue that to identify the specific impacts of corruption, it is necessary to understand intervening factors. It is shown that the impacts of different types of corruption on forests may be direct, indirect, ambiguous, or even negligible. Therefore, anti-corruption efforts should be more targeted to the specific types of corruption that are most likely to contribute to deforestation and forest degradation.

Keyword: Indonesia; Deforestation; Anti-corruption; Corruption; Redd+

274. A historical analysis of the drivers of loss and degradation of Indonesia's mangroves / Ilman, Muhammad; Dargusch, Paul; Dart, Peter; Onrizal. Land Use Policy 274. ISSN: 0264-8377 (2016) v.54 Issue. p.448-459. 54

Url: <https://www.sciencedirect.com/science/article/pii/S0264837716302009>

DOI: 10.1016/j.landusepol.2016.03.010

Abstract: Mangroves have been systematically exploited in Indonesia since 1800, especially for the development of brackish water shrimp aquaculture (called 'tambak') and for timber harvesting. By the end of the 1960s, Indonesia is estimated to have lost more than 200,000ha of its mangroves mostly in Java and Sumatra. The rate of mangrove loss started to dramatically increase in the 1970 when exploitation shifted to new areas outside Java, particularly in Kalimantan and Sulawesi, encouraged by government policies to boost timber production, followed by policies to expand tambak in 1980s and large scale tambak development triggered by increased shrimp price during Asian financial crisis in 1997. The result has been the loss of nearly 800,000ha of mangroves in only 30 years, mostly now in the form of low productivity or abandoned tambaks. In recent years, timber harvesting activities in Indonesia's mangroves appear to have become more sustainable. Our analysis suggests that aquaculture will continue as the main driver of change in mangrove ecosystems in Indonesia followed by palm oil plantation. Failure to deal with the current low productivity of shrimp aquaculture in many parts of Indonesia will force shrimp producers to clear an estimated 600,000ha more mangroves to make way for shrimp farms over the next two decades. However, with improvements in brackish water aquaculture productivity, halting palm oil concession to utilise mangroves, along with maintaining other mangrove use pressures at moderate levels, the net loss of mangroves in the next two decades could be reduced to around 23,000ha.

Keyword: Palm oil; Coastal management; Mangrove timber exploitation; Salt pan; Shrimp aquaculture

275. Aceh and Nias, Indonesia post-tsunami reconstruction by survivor participation / Meigh, John David; Minanto, Ir Minanto; Rachim, Ir Abdul. Proceedings of the Institution of Civil Engineers - Forensic Engineering 275. ISSN: 2043-9903 (2018) v.171 Issue. 2p.70-79. 171

Url: <https://www.sciencedirect.com/science/article/pii/S2043990318000029>

DOI: 10.1680/jfoen.17.00022

Abstract: The earthquake of 26 December 2004 off the west coast of Sumatra, Indonesia, resulted in a tsunami that killed some 300000 people and damaged farmland and irrigation systems and hence the livelihoods of smallholder farmers. A further earthquake on 28 March 2005 killed 1000 people in Nias and damaged irrigation systems throughout the island. In August 2005, a design team was engaged by the Asian Development Bank (ADB) to assist the Indonesian governments Bureau of Rehabilitation and Reconstruction (BRR) to re-establish the irrigation infrastructure and management as a component of the ADB-grant-funded Earthquake and Tsunami Emergency Support Project. A participatory approach was taken by the design team through planning to construction by empowering survivors to form water user associations (WUAs), involving them in the planning process, training them in construction techniques and, through WUA-managed contracts, supporting them to rebuild their secondary and tertiary systems. During the project, the design engineers followed the BRR policy of building back better by incorporating earthquake-resistant design in the higher-risk areas. This paper describes the participatory approach taken to restore some 93 irrigation systems over some 60000ha.

Keyword: disaster engineering; hydrology & water resource; social impact

276. Boundary work: Knowledge co-production for negotiating payment for watershed services in Indonesia / Leimona, Beria; Lusiana, Betha; van Noordwijk, Meine; Mulyoutami, Elok; Ekadinata, Andree; Amaruzaman, Sacha. *Ecosystem Services* 276. ISSN: 2212-0416 (2015) v.15 Issue. p.45-62. 15

Url: <https://www.sciencedirect.com/science/article/pii/S2212041615300139>

DOI: 10.1016/j.ecoser.2015.07.002

Abstract: Boundary work has been proven effective in bridging research communities and the gap between action and policy-making in sustainable development. Applying this boundary-work framework, the manuscript examines the process of knowledge co-production and evaluates its effectiveness in supporting the negotiation process of four cases of payment for watershed services (PWS) in Indonesia. Our case studies reveal that local communities and policy-makers have a diverse range of knowledge regarding watershed functions and services. Recognizing this knowledge diversity, and combining it with scientific information, leads to (i) enlightenment, by engaging local stakeholders in more active roles for knowledge co-production thus setting realistic targets for ecosystem services' interventions in the design of PWS schemes; (ii) decision-making support for stakeholders, by providing opportunities for collaborative learning; and (iii) effective negotiations, by providing salient and credible information. We recognize 10 different prototypes that lead to a better understanding of how payments can be channeled to enhance, or at least maintain, underlying hydrological functions. The case studies, in different landscape configurations and associated PWS prototype settings, show that knowledge interfacing and sharing towards co-producing collaborative products helps to clarify the performance-based indicators for effective PWS negotiation between potential sellers and buyers of ecosystem services.

Keyword: Boundary work; Knowledge co-production; Knowledge diversity; Payment for ecosystem services (PES); Watershed management

277. An ecosystem approach to small-scale fisheries through participatory diagnosis in four tropical countries / Eriksson, Hampus; Adhuri, Dedi S.; Adrianto, Luky; Andrew, Neil L.; Apriliani, Tenny; Daw, Tim; Evans, Louisa; Garces, Len; Kamanyi, Egidius; Mwaipopo, Rosemarie; Purnomo, Agus H.; Sulu, Reuben J.; Beare, Doug J.. *Global Environmental Change* 277. ISSN: 0959-3780 (2016) v.36 Issue. p.56-66. 36

Url: <https://www.sciencedirect.com/science/article/pii/S0959378015300704>

DOI: 10.1016/j.gloenvcha.2015.11.005

Abstract: Participatory diagnosis is an approach to identify, prioritize and mobilise around factors that constrain or enable effective governance and management in small-scale fisheries. Diagnostic frameworks are mostly designed and used for systematic scientific analysis or impact evaluation. Through participation they also have potential to guide contextually informed improvements to management in practice, including transitions to contemporary forms of governance like the ecosystem approach to fisheries (EAF)—the focus of our study. We document and critically reflect on participatory diagnosis processes and outcomes at sites in Indonesia, Philippines, Solomon Islands and Tanzania. These sites were part of an international project on the implementation of the EAF and differed widely in institutional and operational contexts. The Participatory Diagnosis and Adaptive Management framework and the “issue radar” diagnosis map were used to identify, evaluate and address factors associated with navigating management transitions towards the EAF. We found that many challenges and priority actions identified by participants were similar across the four study countries. Participants emphasized habitat restoration, particularly mangrove rehabilitation, and livelihood enhancement. The importance of strengthening governance entities, networks and processes (e.g., harmonization of policies, education and awareness of policies) was also a prominent outcome of the diagnosis. Site-specific factors were also explored together with the differing views among stakeholders. We conclude that diagnosis frameworks are indeed useful tools for guiding management transitions in fisheries, particularly where they enable flexibility in approaches to diagnosing problems and applying solutions to local contexts.

Keyword: Governance; Stakeholders; Transformation; Ecosystem Approach to Fisheries; Fishery management; Participatory framework

278. Network analysis of blue carbon governance process in Indonesia / Ayostina, Ines; Napitupulu, Lucentezza; Robyn, Barakalla; Maharani, Cynthia; Murdiyarso, Daniel. *Marine Policy* 278. ISSN: 0308-597X (2022) v.137 Issue. p.104955. 137

Url: <https://www.sciencedirect.com/science/article/pii/S0308597X22000021>

DOI: 10.1016/j.marpol.2022.104955

Abstract: To align with international climate efforts to remain within 1.5 degrees of the earth temperature, Indonesia requires concerted measures from actors to preserve and restore carbon rich ecosystems, especially blue carbon ecosystem. Although studies have suggested the importance of blue carbon ecosystems in contributing to Indonesian climate action, translating science to policy remains a challenge. Mapping actors and the pattern of information exchange related to blue carbon can help identify potential barriers in the blue carbon governance process and policy development. This study uses Social Network Analysis and integrates it with results from in-depth qualitative

evaluation of institutional respondents. Data is obtained through questionnaires and semi-structured interviews with representatives from a broad range of organizations. It was found that the actor who oversees the fulfilment of the climate commitment, which is the most common objective of the network, is not a central actor. Second, the actors with the highest degree of centrality received little trust from other actors. Third, overall, the network has low quality ties. Each of these hinders knowledge providers' ability to make an impact on policy development. By critically examining the interactions between actors, this research casts new light on the overlooked problem of the significance of the network in blue carbon governance process.

Keyword: Indonesia; Blue carbon; Networks; Governance process

279. Life cycle carbon emissions of different land conversion and woody biomass utilization scenarios in Indonesia / Aryapratama, Rio; Pauliuk, Stefan. *Science of The Total Environment* 279. ISSN: 0048-9697 (2022) v.805 Issue. p.150226. 805

Url: <https://www.sciencedirect.com/science/article/pii/S0048969721053031>

DOI: 10.1016/j.scitotenv.2021.150226

Abstract: Wood-based products can contribute to climate change mitigation by prolonging the storage of carbon in the anthroposphere. In Indonesia, however, many wood-based products originate from unsustainable sources due to widespread land-use changes over the past decades. To reconcile economic development and climate policy, a detailed and comprehensive carbon life cycle assessment is needed, covering biospheric and technospheric woody carbon flows and emissions over time. In this study, we combine dynamic material flow analysis, stock modeling, and life cycle assessment to estimate life cycle carbon emissions over time of wood products from different land conversion types in Indonesia on a hectare (ha) basis. Wood production from clear-cut primary forest conversions to oil palm, secondary forest, and timber plantations lead to net carbon emissions between 1206–1282, 436–449, and 629–958 t-CO₂-eq/ha, respectively, at the end of the 200-year time horizon (TH). The counter-use scenarios of using non-renewable materials or energy instead of wood-based products for the same set of scenarios while leaving primary forests untouched display 44–57, 59–88, and 5–48% lower global warming potentials, respectively, at the end of the TH. Wood products from forest plantations on restored degraded land (DL_FP), reduced-impact logging (RIL), and improved reduced-impact logging (RIL-C) of primary forest went beyond carbon neutrality, displaying carbon removal potentials of up to around –218, –378, and –739 t-CO₂-eq/ha, respectively, by year 200. At the one ha-scale, our results indicate that keeping primary forests intact is the climate-preferable option, even when emissions from the counter-use of non-renewable materials or energy are factored in, except if RIL is performed. Therefore, wood product utilization would only be favorable from a climate perspective in DL_FP or RIL pathways. These results help screen different land conversion policy options and providing information about the climate mitigation potential of wood products in different supply chains.

Keyword: Carbon storage; Climate mitigation; Dynamic life cycle assessment; Dynamic material flow analysis; Land-use strategies; Wood products

280. Legal effectiveness in promoting development policies: A case study of North Aceh Indonesia / Wijatmoko, Erlan; Armawi, Armaid; Fathani, Teuku Faisal. *Heliyon*280. ISSN: 2405-8440 (2023) v.9 Issue. 11p.e21280. 9

Url: <https://www.sciencedirect.com/science/article/pii/S2405844023084888>

DOI: 10.1016/j.heliyon.2023.e21280

Abstract: This research evaluated the effectiveness of the Law on the Governing of Aceh (LoGA) as the legal basis for regional development policies in the North Aceh District, Indonesia. Despite its enactment in 2006, the district has faced persistent challenges, including high poverty rates and poor economic growth. The LoGA was intended to accelerate development in Aceh after the conflict and tsunami, reflecting the legal aspirations of the region (reconsidered). Therefore, using a qualitative approach, including interviews, observations, and analysis of secondary data, this research evaluated the effectiveness of the LoGA based on its provisions, enforcement, infrastructure and facilities, political landscape, cultural factors, and societal impacts. The result showed significant substantive, institutional, and societal challenges, which led to legal uncertainty, ineffective policy implementation, and the necessity for policy revision and community involvement.

Keyword: Poverty; Community involvement; Legal enactment; Legal uncertainty; Revision

281. Generating fatty acid and vitamin D composition data of Indonesian foods / Neufingerl, Nicole; Djuwita, Ratna; Otten-Hofman, Anke; Nurdiani, Reisi; Garczarek, Ursula; Muhandi, Leilani; Eussen, Simone; Alles, Martine; Sulaeman, Ahmad; Eilander, Ans. *Journal of Food Composition and Analysis*281. ISSN: 0889-1575 (2016) v.50 Issue. p.36-48. 50

Url: <https://www.sciencedirect.com/science/article/pii/S0889157516300631>

DOI: 10.1016/j.jfca.2016.05.006

Abstract: The Indonesian food composition table lacks data on individual fatty acids; data on vitamin D is incomplete. The primary aim of this study was to generate data on individual fatty acid content of Indonesian foods. Secondary objective was to analyze vitamin D content. Based on intake data of 4–12year old children from a nationally representative Indonesian survey, 120 foods contributing 95% to children's total polyunsaturated fatty acid intake were selected for chemical analysis of fat and fatty acid content. Vitamin D3 was analyzed in a subset of 60 foods. Food samples were collected throughout Indonesia; per food one representative composite sample was chemically analyzed. Of the analyzed foods, sardines (0.97g/100g), tempeh (0.62g/100g) and tofu (0.56g/100g) had the highest n-3 fatty acids content, peanuts (15.9g/100g) and palm oil (11.4g/100g) were richest in n-6 fatty acids. Vitamin D3 content in foods was limited. This paper significantly contributes to the current knowledge on the fatty acid and vitamin D content of a broad range of commonly consumed Indonesian foods, which can be used in future research to monitor dietary intake and guide policy makers and the food industry to steer nutrient intake in the Indonesian population.

Keyword: DHA; EPA; Fatty acids; Food analysis; Food composition; Food sampling; Linoleic acid; Vitamin D; α -linolenic acid

282. Adapting livelihoods to the impacts of tin mining in Indonesia: options and constraints / Rosyida, Isma; Ullah, Wahid; Helmi, Alfian; Sasaoka, Masatoshi. *The Extractive Industries and Society* 282. ISSN: 2214-790X (2019) v.6 Issue. 4p.1302-1313. 6

Url: <https://www.sciencedirect.com/science/article/pii/S2214790X18302442>

DOI: 10.1016/j.exis.2019.10.018

Abstract: This paper explores the socio-ecological changes perceived by the X-hamlet local community in Bangka Island before and after the spread of large-scale tin mining and how it adapted to those changes. Using evidence collected by household surveys, combined with key informant interviews and focus group discussions, this study shows that the spread of tin mining activity on large and small scales were perceived differently by subsistence groups within this hamlet as a key driver of coastal ecosystem and land tenure system changes, leading to income uncertainty. The household economic conditions, resource availability, relationships, and networking are important factors influencing household decisions on diversifying income sources. Nonetheless, the lack of capital (physical, financial, human), limited skill, and low education levels constrained to them in diversifying their income sources. Thus, landless households are facing a greater challenge in adapting, particularly fishers who are facing ongoing fish depletion yields due to suction dredger and small-scale coastal mining. The landless fishers are potentially marginalized by engaging in mining activity which is an economical, socially, and environmentally unsustainable alternative livelihood. Therefore, future policies need to address those key issues for securing local's lives and livelihoods.

Keyword: Indonesia; Sustainability; Adaptation strategy; Coastal tin mining; Rural livelihoods

283. Balikpapan: Urban planning and development in anticipation of the post-oil industry era / Tarigan, Ari K.M.; Samsura, D. Ary A.; Sagala, Saut; Wimbardana, Ramanditya. *Cities* 283. ISSN: 0264-2751 (2017) v.60 Issue. p.246-259. 60

Url: <https://www.sciencedirect.com/science/article/pii/S0264275116301093>

DOI: 10.1016/j.cities.2016.09.012

Abstract: Balikpapan has grown to become one of the most important cities in Indonesia, due to its oil industry. However, with the decline in oil production and the global decrease in oil prices, the city has attempted to diversify its industrial and service activity economy. This paper assesses three key factors underlying this transformation: public policies and regulations, urban infrastructure, and knowledge creation and utilisation. Future opportunities and challenges the city may face are also discussed. In the light of urban planning and development perspectives, this study can become a lesson for other cities, especially in developing countries, which some of them may overly rely on natural resources-based economy, to anticipate the transition period after an economic boom due to natural resource endowment and its price decrease.

Keyword:

284. Role of emerging nations in ensuring long-term space sustainability / Rathnasabapathy, M.; Slavin, M.; Wood, D.. *Acta Astronautica* 284. ISSN: 0094-5765 (2024) v.219 Issue. p.8-16. 219

Url: <https://www.sciencedirect.com/science/article/pii/S0094576524000584>

DOI: 10.1016/j.actaastro.2024.01.050

Abstract: Over the past decade, the number of member states in the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS) has risen by 40%. The UNCOPUOS continues to be one of the largest committees in the United Nations, with recent additions representing many emerging space nations including the Dominican Republic, Rwanda, Angola, Guatemala, and Bangladesh, among many others. This paper addresses the role of emerging space nations in updating and refining current policies and norms of behavior related to the long-term sustainability of the space environment. The paper provides examples of the recent implementation of long-term space sustainability design and operational guidelines in the national space strategies of several emerging space nations, highlighting the importance nations give to the development of legal mechanisms to regulate the peaceful use of the space environment. Examples of both national and regional initiatives are presented including Thailand's 2021 Draft National Space Act, aimed at creating a national legal regime and establishing a governmental agency dedicated to developing space policies for the registration of objects launched into outer space and space debris mitigation measures, and the National Space Law Initiative (NSLI) study group consisting of Australia, Indonesia, India, Japan, Malaysia, the Philippines, the Republic of Korea, Thailand, and Vietnam to create a framework that aims to promote information sharing and mutual learning in relation to the participants' respective national regulatory frameworks for long-term space sustainability. More recently, new initiatives have been developed that celebrate the efforts of satellite mission operators with the aim to reduce the likelihood of space debris and collisions among space objects. The Space Sustainability Rating (SSR) was created by the World Economic Forum, the European Space Agency, the University of Texas at Austin, BryceTech, and the Massachusetts Institute of Technology, and is now hosted by the EPFL Space Centre. The SSR is a rating system to assess and recognize missions that are designed to be compatible with sustainable and responsible operations, reducing the potential harm to the orbital environment and the impact on other operators. The SSR comprises six modules aimed at assessing missions for their compatibility with sustainable and responsible operations. This paper specifically focuses on evaluating the Detection, Identification and Tracking (DIT) scores for satellite missions launched by emerging space nations. The DIT module of the SSR serves as a standardized measure for assessing space sustainability. The paper adopts an exploratory multi-case study approach. Through this focused study, the paper identifies barriers and unique challenges emerging space nations face, including experiences of operator organizations, launch options, financial constraints, technical options available, and other relevant factors.

Keyword: Emerging space nations; Long-term space sustainability; Space sustainability rating

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