IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 3, February 2024

Temporal Dynamics in Resource Extraction: Exploring Political Ecologies

Anupma
Department of Geography

Abstract: *Time and temporality in natural resource exploitation are covered in this Special Section. The Special Section highlights resource temporalities and temporal tactics surrounding resource extraction, including nostalgia and identity, political measures to postpone projects, and contentious future predictions and management. Contributors discuss varied spatio-temporalities and memories of extractive landscapes, local people's expectations of mining's consequences, and government and business strategies to hasten project completion. We argue that history, memory, velocity, delay, and epistemologies of time shape extractive development challenges and debates in specific areas. We also provide new study pathways on political ecology's disputed time and temporality.*

Keywords: natural resources, extractive industry, temporality, political ecology

I. INTRODUCTION

Creating meaning and value from natural resources requires economic, cultural, political, and ecological activities across diverse periods. Resource extraction investments need predictions of future reserves and earnings to look feasible today. Crop cycles, biogeochemical processes, and highly mobile offshore oil production have different temporalities that help turn nonhuman nature into resources and enroll it in economic circuits.

Extractive efforts try to streamline these periods, creating tensions and disparities. Additionally, regulatory evaluations of resource exploitation risks simulate future repercussions to urge mitigation. Power and politics permeate these ostensibly technical forecasts and computations, and cultural understandings and ideologies impact how people perceive and accept them. Resource exploitation is a significant battleground. Different groups use different past and future visions to justify or reject extractive initiatives. Opponents of extraction may use geographical and temporal techniques to delay and indefinitely postpone projects, while proponents argue that extraction is economically necessary.

This temporal dynamics in resource creation and extraction has been neglected in political ecology scholarship, which has focused on spatial and territorial dynamics and struggles over land, water, habitat, ancestral domain, and the subsurface. This Journal of Political Ecology Special Section discusses temporality in relation to political ecology, critical resource studies, environmental history, and geographic approaches to space and place.

This Special Section explores multiple resource kinds via persistent ethnographic interaction in the global North and South. They demonstrate how natural resource temporalities drive diverse political-economic projects, how people use time as a political strategy, and how foreshortened timescales cause climate change, resource depletion, and clean water loss by examining the material and ideological practices of resource extraction.

Some papers analyze nostalgia and future imaginaries surrounding resources politically, while others show how temporality affects capital accumulation, dispossession, and environmental mitigation. They employ temporality to analyze natural resource socio-ecological processes and power and ideology in extraction politics.

Political ecologies of resources and temporality

Political ecology's unique perspective to human and nonhuman natures may reveal material processes that extractive politics studies miss. Global capitalism needs metals, fossil fuels, water, and wood (McNeil and Vrtis 2017; Smil 2017). Resource extraction excludes others and privatizes nature (Cronon 1991, 1996; Rousselin 2018). Accumulation by dispossession uses violence and extra-economic coercion to release land and resources for capital. Many resource extraction scholars have noted how colonial powers and independent states granted subsurface property regimes

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 3, February 2024

(Avalos-Lozano and Aguilar-Robledo 2017; Emel, Huber, and Makene 2011) and how resource extraction has changed jurisdiction, property ownership, transportation, and labor relations. Experts also see extraction's current and historical impacts on Earth's landscapes, regions, and biophysical systems. Extraction alters spatial interactions between nations, impacted communities, corporations, and consumers. Global capitalism profits from exploitation and speculation with cheap fossil fuels (Huber 2013; Malm 2016; Moore 2015; Smil 2017). Imperialist growth requires resource control. Extractive accumulation fuels nationalism and resource sovereignty arguments over colonialism and Indigenous dispossession (Partridge 2016). Because extraction is so important economically, numerous efforts to nationalize extractive sectors have clashed with governments' commitments to protect Indigenous rights and attract investors (Bebbington and Humphreys Bebbington 2011). Political ecology research on extraction has explored socio-political conflict over extractive development and environmental impacts (Walter and Urkidi 2017). Academics say environmental justice safeguards community resources and lands against exploitation. Distribution of environmental consequences, stakeholder participation in decision-making, and Indigenous recognition may enhance environmental justice in extractive projects (Urkidi and Walter 2011).

Temporality

Political ecology's interdisciplinarity allows temporal nature politics research. Temporality is the “interpretation of becoming,” and times the "phenomenon of becoming" (Iparraguirre 2016: 614). Therefore, time explains social meaning, culture, capital accumulation, and political strategy. It shows how time is viewed, experienced, and utilized. Politically created temporal understandings reinforce social hierarchies or challenge them.

Colonialism and capitalism need temporal management. Workers challenge capitalism's linear time to penalize and value wage labor (Castree 2009; Harvey 1982; Massey 1999; Rifkin 2017; Thompson 1964). Technology like rail schedules standardized time under capitalism (Cronon 1991). Colonialism uses calculable and disciplined linear temporalities for land, resource, and population management (Rifkin 2017). Orientalist ideology justified colonialism by presenting the global south as "backward" and unmodern (Adam 2006; Morse 2003).

The "allochronism" or "denial of coevalness" of ethnographic subjects as being in a distinct spatio-temporal frame outside modern time has also been questioned in colonial anthropology (Fabian 1983).

Time is a political battlefield. Capitalism and colonialism normalize, dehistoricize, and generalize their temporalities, while other temporalities exist (Donaldson 1996). Cultural and political-economic factors impact social structures, temporal perceptions, and resource use (Munn 1992; Rutz 1992). Time competitions help indigenous people express sovereignty and explain socio-ecological and political links (Rifkin 2017). Indigenous temporalities may coexist with hegemonic temporalities (Iparraguirre 2016) or challenge settler colonialism (Rifkin 2017). Temporal justice study and action in decision-making, land and resource governance, and Indigenous sovereignty are growing due to these fights (Goodin 2010). Slow resistance to neoliberal capitalism has been adopted by Indigenous, intellectual, and food groups (Mountz et al. 2015).

Capital globalization and "time-space compression" (Harvey 1990) have caused temporal gaps, inequalities, and experiences.

Time-space compression reimagines Marx's theory of space annihilating via time by permitting speedier transactions across huge distances as communications and transportation improve. Distance friction-reducing techniques "so revolutionize the objective qualities of space and time that we are forced to alter, sometimes in quite radical ways, how we represent the world to ourselves" (Harvey 1990: 240).

Time-space perceptions and representations result from accumulation and resistance. According to Doreen Massey (1991, 1999), geographers have typically concentrated on spatial dynamics in "power geometry" a corrective interpretation of time-space compression that stresses unique mobilities and links across space. Time, speed, and futurity feel different according to spatial dynamics.

The "temporal dispossession" of coltan miners in eastern Democratic Republic of Congo by the violent political economics of coltan, used in electronics, makes it hard for ordinary people to forecast or prepare for the future (Smith 2011). The ubiquitous technologies that shorten time and space in globalization harm the environment, inflict systemic violence, and foreclose on the future in this and other nations (Klinger 2017; Smith 2011).

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 3, February 2024

Scholars debate space-time divisions (May and Thrift 2001). Geographers use phrases like "spatio-temporal fix" and stress space-time as a co-constituted object whose manipulation is important to capitalist processes due to the spatial revolution in the social sciences (Lefebvre 1991; Massey 1992; Urry 1991). This article collection is based on temporality-spatiality literature (Massey 2018).

Temporalities of natural resource extraction

Political ecology research is investigating the temporal dynamics of resource production and social actors' understanding and use of nonhuman nature. This Special Section uses political ecology to conceptualize resource-making and extraction across many periods. Articles discuss resource temporalities and resource extraction politics and strategies, including temporal emotions and identities, time as a political strategy, and divergent temporalities in impact assessment and predictive calculations.

Material temporalities

Biophysical and ecological timeframes influence resource extraction politics and show human-nonhuman interactions. Geological and biological processes create physical resources over considerably longer periods than social and economic processes employed to define, value, and use them (Ferry and Limbert 2008). In the last 200 years, fossil fuels have been burned faster than bio-geophysical processes can manufacture them over hundreds of millions of years. Other minerals created over lengthy geological timeframes have been quickly depleted.

The location and chemical properties of subterranean resources also limit extraction speed (Kohl and Farthing 2012; Richardson and Weszkalnys 2014; Widick 2009). Bituminous tar sands, for example, require a lot of nonrenewable resources to extract. This necessitates more attention to socio-political interactions with geophysical and biophysical systems on different timeframes (Arnall and Kothari 2015; Clark and Gunaratnam 2017; Li 2017).

Additional research on diverse temporalities emphasizes epistemology, demonstrating that Western and colonial scientific observation has frequently failed to appreciate processes that occur over lengthy geological and biological timeframes (Duvall 2011). Sâkihitowin Awâsis's article in this Special Section examines how Indigenous temporalities are inherent to materialities and intertwined with nonhuman animals, seasons, land, and myriad ecological and planetary processes (Awâsis 2020). Multiple Anishinaabe temporalities are linked to land and created with nature, questioning time-space distinctions.

Time as political strategy

Time causes conflict and political-economic scheming. To influence supply and pricing, extractive monopolies like oil firms have halted, delayed, or refused to exploit resource finds (Mitchell 2013). This has caused national resource development disputes. Resource politics still relies on extractive inertia and deliberate materiality and velocity manipulations (Hitchcock 2015). Activism typically aims to postpone mining development and promote opposing views on energy production (Hébert 2016). Some resource extraction opponents have physically blocked extractive activities or delayed regulatory clearance (Gedicks 1993). Other worker cooperatives have slowed mining output to preserve job security and the resource's preservation as national treasure (Ferry 2005). This echoes theories of activists and mining companies using the "politics of time" (Kirsch 2014). In this Special Section, Ashley Fent uses anticipatory politics to explain how local players opposing a mining proposal in Casamance, Senegal, interact in the present to delay and claim an uncertain future (Fent 2020). Companies investing in volatile global commodities markets might be severely affected by delays. This potential for disruption has prompted business and government measures to reduce social frictions (Kirsch 2014; Li 2015).

Modular, versatile, and socio-politically "disentangled" offshore oil rigs have helped create novel spatio-temporal arrangements (Appel 2012; Ferguson 2005). Extractive enterprises promote future plenty and distance themselves from environmental degradation, social and economic upheavals, and long-term human health repercussions to get permission (Kojola 2020). When popular permission is required, new extractive projects like oil pipelines and sand mining need public trust and security. Trust building is temporal and frequently involves competing future visions and risk-benefit predictions (Mayer 2016; Szolucha 2018).

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 3, February 2024

Temporal emotions and identities

Resource extraction memory, experience, and planning use affective temporal frames (McNeil and Vrtis 2017). Resource extraction politics are linked to good and bad memories and future outlooks. Romantic and idyllic nostalgia are socially beneficial ways to express the past in the present, not passive or objective. Nostalgic perceptions of the past promote contradictory new extraction methods. In coal mining communities, mountaintop removal arguments mobilize opposing views of environment and local histories (Scott 2010; Smith 2015).

Erik Kojola's (2020) work on projected copper mines in Minnesota examines memory, identity, and the emotions evoked by past and future imaginaries. He illustrates how mining development opponents and supporters use class- and place-based timescapes to justify their positions, drawing attention to historical power relations and how past memories affect present controversies. Hegemonic extractivism is reinforced by nostalgic communal memories and positive environmental imaginaries, although conservation and leisure timescapes may also challenge extraction.

The essays in this Special Section show how emotional links to extraction histories shape geography, indigeneity, race, labor, and gender identities. Alessandro Morosin (2020) shows that Indigenous community opposition to development plans in Oaxaca's Isthmus of Tehuantepec is driven by collective memories and prior experiences. Indigenous activists and campesinos use pain and unity in the face of official violence to defend their land and identities against extractive development spearheaded by foreign capital and backed by Mexican elites These processes reveal how the past, present, and future are interconnected.

Awasis (2020) shows how Anishinaabe time encompasses temporal linkages and fluidity rather than Western colonial time's past, present, and future. In addition to linear time, the writers discuss other methods to conceptualize temporal identities, communal memories, and future imaginaries.

Assessing and predicting the future

Temporality is crucial to extractive sector income and environmental risk assessment. Extractive infrastructure project speculation and global commodity pricing establish natural resource futures markets (Gilbert 2016; Labban 2010; Weszkalnys 2015), and extraction, storage, and transportation temporalities, flows, and blocks determine resource value. Hoarding and purposeful attempts to release or withhold metals and fossil fuels may alter price permanently (Adkins 2009; Mitchell 2013).

Limited shelf life for agricultural products. Technical, engineering, and scientific procedures are used to estimate prospective reserves and build a picture of certainty, abundance, and profitability despite the "radical incalculability" of highly economically irrational markets and "boom and bust" cycles (Mitchell 2013; Szolucha 2018 In her 2020 essay on huge dams in the Lesotho Highlands Water Project, Yvonne Braun demonstrates that projects may achieve legitimacy by breaking investments into stages, disinvesting and reinvesting, and systematically ignoring earlier building work's detrimental impacts.

ESIA forecasts the ecological, social, and economic impacts of extraction and is a place of leverage and contestation. More collaborative and participatory social impact assessment may aid democratic decision-making and comprehensive understandings of complex socio-ecological linkages, but it is still determined by power relations between mining firms, governments, workers, and people. Public involvement, ecological, and socio-economic considerations in bureaucracy can collide with process and impact timescales.

Awasis (2020) shows that settler-colonial and capitalistic pipeline assessment and evaluation timeframes undermine Indigenous Anishinaabe spatio-temporalities such seasonality and intergenerational and nonhuman relationships. According to Fent's 2020 essay, scientific professionals analyze future hazards while anti-mine activists utilize public consultations to postpone, dispute, and create alternate forecasts about mining's environmental and social repercussions.

II. CONCLUSION

Diversity in spatio-temporalities is stressed in these Special Section studies on resource politics. The authors show that nostalgia, communal memory, marginalization, and oppression impact communities' extractive future visions and political initiatives. They demonstrate that differently positioned players use temporal techniques to delay, predict, or expedite land and resource expropriation. This topic might be explored across projects and locations to identify what

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 3, February 2024

makes spatio-temporal techniques work or fail. This research may also examine these motions, comparing similarities, differences, and linkages. Most ethnographic work in this Special Section includes affected people.

Corporate perspectives and labor arrangements (Appel 2012) and national government planning and geological exploration (Weszkalnys 2014, 2015) suggest more research is needed to understand how states, corporations, banks, and scientists affect project approval and implementation timelines. This Special Section shows how past, present, and future and time and space are flexible. They show how historical understandings affect future projections, present actions, community memory, and socio-ecological history interpretation.

They also argue that extraction sites become capital accumulation and/or protest sites via remembering, predicting, expecting, and visioning. These writings take materiality and more-than-human interactions seriously and explore varied resource production, consumption, and extraction periods.

They show that environmental and social impact assessment methodologies usually ignore longer-term effects and marginalize other socio-ecological processes and their perceptions. We suggest further political ecology research on temporal epistemologies and resource periods. This might decenter and provincialize colonial and capitalist time perceptions and indicate variations in resource consumption and elsewhere.

REFERENCES

[1]. Adam, B. 2006. Time. Theory, Culture and Society 23(2–3): 119–126.

[2]. Adkins, L. 2009. Sociological futures: from clock time to event time. Sociological Research Online 14(4): 1–5.

[3]. Andrews, E. and J. McCarthy. 2014. Scale, shale, and the state: political ecologies and legal geographies ofshale gas development in Pennsylvania. Journal of Environmental Studies and Sciences 4(1): 7–16.

[4]. Appel, H. 2012. Offshore work: oil, modularity, and the how of capitalism in Equatorial Guinea. AmericanEthnologist 39(4): 692–709.

[5]. Appel, H., A. Mason and M.J. Watts. 2015. Introduction: oil talk. In Appel, H., A. Mason and M.J. Watts (eds.).

[6]. Subterranean estates: life worlds of oil and gas. Ithaca, NY: Cornell University Press. Pp. 1-26.

[7]. Arnall, A. and U. Kothari. 2015. Challenging climate change and migration discourse: different understandingsof timescale and temporality in the Maldives. Global Environmental Change 31: 199–206.

[8]. Avalos-Lozano, A. and M. Aguilar-Robledo. 2017. Reconstructing the environmental history of colonial mining: the Real Del Catorce mining district, northeastern New Spain/Mexico, eighteenth and nineteenth centuries. In McNeil, J.R. and G. Vrtis (eds.). Mining North America: an environmental history since 1522. Oakland, CA: University of California Press. Pp. 47–72.

[9]. Awâsis, S. 2020. "Anishinaabe time": temporalities and impact assessment in pipeline reviews. Journal of Political Ecology 27: 830-852.

[10]. Bebbington, A.J. 2012. Underground political ecologies: the second annual lecture of the Cultural and Political Ecology Specialty Group of the Association of American Geographers. Geoforum 43 (6): 1152–1162.

[11]. Bebbington, A.J. and D. Humphreys Bebbington. 2011. An Andean avatar: post-neoliberal and neoliberal strategies for securing the unobtainable. New Political Economy 16(1): 131–145.

[12]. Bedi, H.P. 2013. Environmental mis-assessment, development and mining in Orissa, India. Development and Change 44 (1): 101–123.

[13]. Boym, S. 2001. The future of nostalgia. New York: Basic Books.

[14]. Braun, Y.A. 2020. Lesotho's white gold: the political ecology of temporality and the economy of anticipationin resource extraction and large dam infrastructural project. Journal of Political Ecology 27: 853-876.

[15]. Bustos, B., M. Folchi and M. Fragkou. 2017. Coal mining on pastureland in southern Chile: challengingrecognition and participation as guarantees for environmental justice. Geoforum 84: 292–304.

[16]. Castree, N. 2009. The spatio-temporality of capitalism. Time & Society 18 (1): 26–61.

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 3, February 2024

[17]. Clark, N. and Y. Gunaratnam. 2017. Earthing the Anthropos? From 'socializing the Anthropocene' to geologizing the social. European Journal of Social Theory 20: 146–163.
[18]. Cronon, W. 1983. Changes in the land: Indians, colonists, and the ecology of New England. New York: Hill & Wang.
[19]. Cronon, W. 1991. Nature's metropolis: Chicago and the Great West. New York: W.W. Norton & Company. Cronon, W. 1996. Uncommon ground: rethinking the human place in nature. New York: W.W. Norton &
[20]. Company.
[21]. Davis, F. 1979. Yearning for yesterday: a sociology of nostalgia. New York: Free Press.
[22]. Donaldson, M. 1996. The end of time? Aboriginal temporality and the British invasion of Australia. Time & Society 5 (2): 187–207.
[23]. Duvall, C. 2011. Ferricrete, forests, and temporal scale in the production of colonial science in Africa. In Goldman, M.J., P. Nadasdy and M.D. Turner (eds.). Knowing nature: conversations at the intersection of political ecology and science studies. Chicago: University of Chicago Press. Pp. 113–127.
[24]. Emel, J., M.T. Huber and M.H. Makene. 2011. Extracting sovereignty: capital, territory, and gold mining in Tanzania. Political Geography 30: 70–79.
[25]. Fabian, J. 1983. Time and the other: how anthropology makes its object. New York: Columbia University Press. Fent, A. 2020. The anticipatory politics of dispossession in a Senegalese mining negotiation. Journal of
[26]. Political Ecology 27: 877-897.
[27]. Ferguson, J. 2005. Seeing like an oil company: space, security, and global capital in neoliberal Africa. AmericanAnthropologist 107 (3): 377–382.
[28]. Ferry, E.E. 2005. Not ours alone: patrimony, value, and collectivity in contemporary Mexico. New York:Columbia University Press.
[29]. Ferry, E.E. and M.E. Limbert. 2008. Timely assets: the politics of resources and their temporalities. Santa Fe: School for Advanced Research Press.
[30]. Gedicks, A. 1993. The new resource wars: Native and environmental struggles against multinational corporations. Boston: South End Press.
[31]. Gilbert, P.R. 2016. Money mines: an ethnography of frontiers, capital and extractive industries in London and Bangladesh. Ph.D. dissertation. Brighton: University of Sussex.
[32]. Glassman, J. 2006. Primitive accumulation, accumulation by dispossession, accumulation by 'extra-economic'means. Progress in Human Geography 30(5): 608–625.
[33]. Goodin, R.E. 2010. Temporal justice. Journal of Social Policy 39(1): 1–16.
[34]. Gramling, R. and W.R. Freudenburg. Opportunity-threat, development, and adaptation: toward a comprehensive framework for social impact assessment. Rural Sociology 57(2): 216–234.
[35]. Harvey, B. and S. Bice. 2014. Social impact assessment, social development programmes and social licence tooperate: tensions and contradictions in intent and practice in the extractive sector. Impact Assessment and Project Appraisal 32(4): 327–335.
[36]. Harvey, D. 1982. The limits to capital. Chicago: University of Chicago Press.
[37]. Harvey, D. 1990. The condition of postmodernity: an enquiry into the origins of cultural change. Oxford: Blackwell.
[38]. Harvey, D. 2003. The new imperialism. Oxford: Oxford University Press.
[39]. Hayes-Conroy, A. and J. Hayes-Conroy. 2010. Visceral difference: variations in feeling (slow) food.
[40]. Environment and Planning A: Economy and Space 42(12): 2956-2971.
[41]. Hébert, K. 2016. Chronicle of a disaster foretold: scientific risk assessment, public participation, and the politics of imperilment in Bristol Bay, Alaska. Journal of the Royal Anthropological Institute 22(S1): 108–126. Holden, W., K. Nadeau and R.D. Jacobson. 2011. Exemplifying accumulation by dispossession: mining and
[42]. indigenous peoples in the Philippines. Geografiska Annaler: Series B, Human Geography 93(2): 141–
[43]. 161.

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 3, February 2024

[44]. Himley, M. 2014. Monitoring the impacts of extraction: science and participation in the governance of miningin Peru. Environment and Planning A: Economy and Space 46(5): 1069–1087.
[45]. Hitchcock, P. 2015. Velocity and viscosity. In Appel, H., A. Mason and M.J. Watts (eds.). Subterranean estates: life worlds of oil and gas. Ithaca: Cornell University Press. Pp. 45-60.
[46]. Huber, M.T. 2013. Lifeblood: oil, freedom, and the forces of capital. Minneapolis: University of MinnesotaPress.
[47]. Huber, M.T. and J. Emel. 2009. Fixed minerals, scalar politics: the weight of scale in conflicts over the '1872Mining Law' in the United States. Environment and Planning A 41(2): 371–388.
[48]. Iparraguirre, G. 2016. Time, temporality and cultural rhythmics: an anthropological case study. Time & Society
[49]. 25(3): 613–33.
[50]. Isenberg, A.C. 2005. Mining California: an ecological history. New York: Farrar, Straus and Giroux.
[51]. Jessop, B. 2006. Spatial fixes, temporal fixes, and spatio-temporal fixes. In Castree, N. and D. Gregory (eds.).
[52]. David Harvey: a critical reader. Oxford: Blackwell. Pp. 142-166.
[53]. Jones, O. and J. Garde-Hansen. 2012. Geography and memory: explorations in identity, place and becoming.
[54]. New York: Palgrave Macmillan.
[55]. Kirsch, S. 2014. Mining capitalism: the relationship between corporations and their critics. Berkeley: University of California Press.
[56]. Klinger, J.M. 2017. Rare earth frontiers: from terrestrial subsoils to lunar landscapes. Ithaca: Cornell University Press.
[57]. Kneas, D. 2016. Subsoil abundance and surface absence: a junior mining company and its performance ofprognosis in northwestern Ecuador. Journal of the Royal Anthropological Institute 22(S1): 67–86.
[58]. Kohl, B. and L. Farthing. 2012. Material constraints to popular imaginaries: the extractive economy andresource nationalism in Bolivia. Political Geography 31: 225–235.
[59]. Kojola, E. 2019. Indigeneity, gender and class in decision-making about risks from resource extraction.
[60]. Environmental Sociology 5(2): 130-148.
[61]. Kojola, E. 2020. Divergent memories and visions of the future in conflicts over mining development. Journal of Political Ecology 27: 898-916.
[62]. Labban, M. 2010. Oil in parallax: scarcity, markets, and the financialization of accumulation. Geoforum 41(4):541–552.
[63]. Langston, N. 2017. Sustaining Lake Superior: an extraordinary lake in a changing world. New Haven: Yale University Press.
[64]. Lefebvre, H. 1991[1974]. The production of space. Oxford: Blackwell.
[65]. Labussière, O. and A. Nadaï. 2018. The temporalities of energy transition processes. In Labussière, O. and A. Nadaï (eds.). Energy transitions: a socio-technical inquiry. New York: Palgrave MacMillan. Pp. 277– 317.
[66]. Li, F. 2015. Unearthing conflict: corporate mining, activism, and expertise in Peru. Durham: Duke University Press.
[67]. Li, T.M. 2017. Rendering land investible: five notes on time. Geoforum 82: 276–278.
[68]. Lipsitz, G. 1990. Time passages: collective memory and American popular culture. Minneapolis: University of Minnesota Press.
[69]. Malm, A. 2016. Fossil capital: the rise of steam power and the roots of global warming. New York: Verso. Massey, D. 1991. A global sense of place. Marxism Today June: 24–29.
[70]. Massey, D. 1992. Politics and space/time. New Left Review 1(196): 65–84.
[71]. Massey, D. 1999. Power-geometries and the politics of space-time. Heidelberg: University of Heidelberg Press. Massey, D. 2018. Politics and space time. In Christophers, B., R. Lave, J. Peck and M. Werner (eds.). The
[72]. Doreen Massey reader. Newcastle upon Tyne: Agenda Publishing. Pp. 259–278.
[73]. May, J. and N. Thrift. 2001. Timespace: geographies of temporality. London: Routledge.

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 3, February 2024

[74]. Mayer, A. 2016. Risk and benefits in a fracking boom: evidence from Colorado. The Extractive Industries and Society 3(3): 744–753.

[75]. McCreary, T., S. Mills and A. St-Amand. 2016. Lands and resources for jobs: how Aboriginal peoples strategically use environmental assessments to advance community employment aims. Canadian PublicPolicy 42(2): 212–223.

[76]. McNeil, J.R. and G. Vrtis (eds.). 2017. Mining North America: an environmental history since 1522. Berkeley:University of California Press.

[77]. Mitchell, T. 2013. Carbon democracy: political power in the age of oil. London: Verso.

[78]. Moore, J.W. 2015. Capitalism in the web of life: ecology and the accumulation of capital. London: Verso. Morosin, A. 2020. Comunalidad, Guendaliza'a and anti-mine mobilizations in the Isthmus of Tehuantepec.

[79]. Journal of Political Ecology 27: 819-938.

[80]. Morse, K.T. 2003. The nature of gold: an environmental history of the Klondike Gold Rush. Seattle: Universityof Washington Press.

[81]. Mountz. A., A. Bonds, B. Mansfield, J. Loyd, J. Hyndman, M. Walton-Roberts, R. Basu, R. Whitson, R. Hawkins, T. Hamilton and W. Curran 2015. For slow scholarship: a feminist politics of resistance though collective action in the neoliberal university. ACME: An International E-Journal for Critical Geographies 14 (4): 1235-1259.