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Visual Storytelling and Socioenvironmental Change: Images, Photographic Encounters, and Knowledge Construction in Resource Frontiers

Samuel J. Spiegel

School of Social and Political Science, University of Edinburgh

Practices of visually representing places of resource extraction and land degradation can be deeply contentious, embedded in a wide variety of values, ethics, goals, and relations. Photographs are pervasively used to generate narratives about environmental change, particular social groups, and places. Yet, the sociocultural processes and power relations at play in producing “visual knowledge” and interpreting images often remain underexplored, with limited attention to how photographs and visual storytelling are engaged to (re)orient discussions about change. Challenging ways of seeing, this article discusses relational practices around photography and the narrating, experiencing, and circulating of images. It explores experiences with photovoice—a methodology aimed at realigning the dynamics of who decides what photos matter, how, why, and with what implications, sometimes pitched as a way to “decolonize” research. The study examines interactions in a village in Central Kalimantan, Indonesia, where women shared visual stories to express challenges they face in relation to deforestation and other landscape changes, depleted gold deposits, limited livelihood options, and other themes, conveying place histories and ideas about home, identity, governance, and community. Reflecting on intergenerational dialogues and anxieties about the future, the analysis considers photovoice processes in refracting everyday struggles, arguing for feminist epistemologies that carefully attend to the situated ethics and contingent performative powers of visual storytelling where multiple forms of resource extraction powerfully shape community life. The article calls for greater focus on women’s place-based storytelling and its communicative power, highlighting the significance of positionality when studying socioecological visualization, affect, and change. *Key Words:* *feminist visualization, Indonesia, participatory visual methods, photovoice, resource extraction.*

视觉上再现资源榨取地和土地侵蚀的做法，可以是具高度争议性的，并且植基于多样的价值、道德、目标与关系之中。照片被广泛用来生产有关环境变迁、特定社会团体与地方的叙事，但生产“视觉知识”与诠释影像时作用的社会文化过程和权力关系，却经常未受探讨，而对于照片与视觉故事如何（重新）定位有关变迁的讨论之关注亦相当有限。本文挑战观看的方式，探讨照片的关系性实践以及影像的叙事、经验和传播。本文探讨影像发声的经验——一个旨在重新排列谁决定什麼照片有意义、如何且为何有意义，以及有何意涵的方法论，有时被定调为一种“去殖民化”研究的途径。本研究检视印尼加德满都中部一座村落中的互动，其中女性分享视觉故事来表达她们面对有关去森林化和其他地景变迁、金矿耗尽、有限的生计选择以及其他主题之挑战，并传播有关家、身份认同、治理与社群的地方历史与见解。本文分析反思有关未来的跨世代对话与焦虑，考量折射每日生活斗争的影像发声过程，主张审慎关照视觉故事随境况而异的道德和机变展演的权力之女权主义认识论，其中资源榨取的多重形式强大地形塑了社区生活。本文呼吁更佳关注女性以地方为基础的说故事及其沟通力，并在研究社会生态的可视化、情感和变迁时，强调位置性的重要性。关键词：女权主义可视化，印尼，参与式视觉方法，影像发声，资源榨取。

Las prácticas para representar visualmente los lugares de extracción de recursos y degradación de la tierra pueden ser profundamente polémicos, insertadas en una vasta variedad de valores, éticas, metas y relaciones. Las fotografías se usan de manera generalizada para generar narrativas acerca del cambio ambiental, de grupos sociales particulares y de lugares. No obstante, los procesos socioculturales y relaciones de poder que intervienen para producir “conocimiento visual” e interpretar imágenes a menudo permanecen poco explorados, con atención limitada al modo como las fotografías y la narrativa visual de historias son involucradas para (re)orientar las discusiones sobre el cambio. Desafiando las maneras de ver, este artículo

discute sobre las prácticas relacionales alrededor de la fotografía y la narración, experimentación y circulación de imágenes. Se exploran las experiencias con fotovoz—una metodología que apunta a realinear la dinámica de quién decide cuáles fotos importan, cómo, porqué y con qué implicaciones, a veces orientadas como una vía para “descolonizar” la investigación. El estudio examina las interacciones en una aldea del Kalimantan Central, Indonesia, donde las mujeres compartieron historias visuales para expresar los retos que ellas enfrentan en relación con la deforestación y otros cambios del paisaje. Depósitos de oro agotados, opciones limitadas de sustento y otros temas, transmiten historias del lugar e ideas acerca del hogar, identidad, gobernanza y comunidad. Reflexionando sobre los diálogos intergeneracionales y las ansiedades acerca del futuro, el análisis considera los procesos de fotovoz para refractar las luchas cotidianas, reclamando epistemologías feministas que cuidadosamente atienden la ética situada y los contingentes poderes performativos de contar historias visuales donde múltiples formas de extracción de recursos configuran poderosamente la vida comunitaria. El artículo clama por mayor concentración del interés sobre la narrativa de historias basadas en el lugar de las mujeres y su poder comunicativo, destacando la significancia de la posicionalidad al estudiar la visualización socioecológica, el afecto y el cambio. *Palabras clave: extracción de recursos, Indonesia, fotovoz, métodos visuales participativos, visualización feminista.*

In 2017, Indonesia’s leading English language newspaper, *The Jakarta Post*, published an article describing ecological impacts of mining using a curious mix of text and visual depiction. After noting that 500,000 artisanal and small-scale gold miners were exposed to mercury, the piece showed an aerial view of landscape destruction—a photograph depicting colossal impact. The article was about mining in Indonesia, where severe landscape degradation is well documented (Siswanto, Krisnayani, and Utomo 2012; Sudarmadji and Hartati 2016), yet a remarkable detail was evident in the caption—in small font—below the photo: The image was an aerial shot of mining in Peru, not Indonesia (“500,000 Miners Exposed to Mercury” 2017). Several questions might, therefore, immediately come to mind: Did a previous draft of the article make a comparison between Indonesia and Peru, only to see that text cut but the photo remain? Did the newspaper not have any Indonesian aerial views on file? During fieldwork in a gold mining region in Borneo, I asked a friend what to make of the newspaper’s apparent mistake (or geographical switch-up) and we wondered whether a rush under a tight publication deadline led to a quick decision to use a stock visual image, assuming that picturing the actual country context was unimportant. Whatever the explanation, the photograph ultimately served—very clearly—not as a reflection of realities in the country the article represented but rather an abstraction. The image might have been similar to certain landscape views in Indonesia but it remained conspicuously detached from realities, meanings, and lives in the Indonesian spaces discussed.

In this article I suggest that visuals depicting environments and resource frontier worlds are rife with

ambiguities and possibilities for creative (mis)interpretation, with the social and power dynamics of their production embroiling tensions that remain understudied and undertheorized in geography. There have been calls for more attention to the visualization of mining environments and competing social claims (Spiegel et al. 2012; Bowers 2013; Bebbington, Cuba, and Rogan 2014; Price 2018) as well as broader concerns that photographic representation might frequently create, as Barthes (1981) famously argued, a “deceiving” sense of place—as well as possibilities for uncertainty and understanding, often simultaneously. This article draws on growing bodies of geographical, anthropological, and environmental studies literature grappling with the performativity of images (Edwards 2012; Rose 2014, 2016) as well as Haraway’s (1991) famous critiques of “the god-trick of seeing everything from nowhere” (189) and “the privilege of the partial perspective” (183). Efforts to challenge notions of a “detached” and “objective” gaze have abounded among feminist geographers (Kwan 2002; Nightingale 2003), calling not only for critiques of dominant representational practices and the broader social tensions surrounding their uncritical interpretation but also for explorations of alternative ways of seeing and interacting. The material worlds of mineral extraction have been rendered visible through numerous technologies of scientific measurement and representation that orient the ways in which we might think about issues and transformations where mining is taking place (Bridge 2013; Mitchell 2016; Suh et al. 2017). Yet, far less analyzed are the nuanced concerns and desires within communities affected by extraction and the diverse (relationally and temporally situated) meanings and choices as to what is important to

visualize—and explore and interpret—from the perspective of different actors. This article explores perspectives surrounding resource frontier imagery and photographic encounters in Indonesia, in a region of Central Kalimantan where unlicensed artisanal and small-scale gold mining has served as a widespread primary and supplemental income source for smallholders since the 1990s as well as a driver of deleterious landscape transformation (Spiegel 2012; Astuti and McGregor 2017; Purwanto 2017; Barney 2018). I focus especially on experiences in a participatory “photovoice” (Wang and Burris 1997) project that explored social and ecological change, examining some of the ways in which women in a gold-producing village visualize and attach meanings to visuals, conveying insight about transformations in their lives, environments, and community spaces.

Photographs and photographic methods, like other practices of visualization, can be embedded in complex “geographies of hope and fear” (Klinkenberg 2007) and elicit a myriad of emotions. The ubiquity of photographs and image capture technologies in modern society has given way to a diverse range of critical concerns, including that contemporary uses of cameras can replicate colonialist and imperialist traditions of representation, often subtly if not blatantly (Braun 1997; Coats 2014). Although photography can be used for reframing socioecological debates by prompting questions about diverse relational, spatial, and temporal scales (Thomsen 2015), feminist participatory visual methods are increasingly seen as avenues for probing into underappreciated dimensions of emotion and affect (Tremblay and Harris 2018). Feminist geographers are increasingly voicing the need to creatively and collaboratively challenge unreflexive modes of representation and expression that marginalize “othered” subjectivities, highlighting the need to situate visual representations with anticolonial epistemologies and storytelling that resists traps of “Eurocentric colonial performances of universalization” (De Leeuw and Hawkins 2017, 308).

Conceptualized sometimes as a way of radically reversing the power relation between academics and so-called research subjects, photovoice is a method in which community members lead processes of visual exploration and meaning construction. It is often defined as a “process by which people can identify, represent and enhance their community through a specific photographic technique” (Wang and Burris

1997, 369). My arguments here join Elwood and Hawkins (2017) and Kwan (2007) in making a case for critical epistemological pluralism and reflexivity in unpacking visual approaches and their contexts. I also suggest, in the realm of studying deforested places and contexts marked by deep transformations, that photovoice can present meaningful avenues—although not without ethical complexities—for researchers to form community collaborations and counter other less contextualized visual methods that dominate certain types of conversations. In particular, in Central Kalimantan, Indonesia’s third largest province and one of the world’s most renowned deforestation hot spots (Gao et al. 2016), remote sensing and land-cover photographs recurrently feature in academic repertoires to understand landscapes. From aerial images of forests ablaze during the infamous “haze” crises (due to peatland fires) to images of illegal logging (which proliferated in the 2000s; Tsing 2005; Suwarno, Hein, and Sumarga 2015) and mining, environmental imagery “from above” in Indonesian Borneo is vast. Much of the media’s visual representation of Kalimantan’s deforested areas fuels what Goodman et al. (2016) called “spectacular environmentalism” in the global imagination, with televised spectacles of damaged forests and endangered orangutans tapping into grand destruction narratives that are (often) poorly linked to social relations, everyday struggles, and epistemologies of people who live in the areas depicted. Importantly, though, attempts to capture dynamics on the ground have also been subject to biases; much writing elucidates how participatory methods of assessment and planning have often been shaped by unequal power dynamics, gender politics, and subtle forms of exclusion and prejudice (Peluso 1995; Li 2007; Elmhirst et al. 2017).

Recently, Radjawali, Pye, and Flitner (2017) and Radjawali and Pye (2017) discussed drone photography and methods of countermapping (Peluso 1995) used by indigenous communities and researchers collaboratively to bring attention to marginalized groups’ land claims and territorial impacts of extractives companies in West Kalimantan. Their analyses illustrate efforts to transform visualization tools that have historically been tools used by state actors and industry—maps and aerial visuals—to advance concerns of local populations; they are part of the wider global wave of responding to hegemonic and undemocratic uses of maps, remote sensing, and geographic

information systems (GIS) with more grassroots approaches (Ghose and Welcenbach 2018; Radil and Anderson 2018). They hearken optimistically to the multiple social functions of aerial photography in Indonesia. Internationally, meanwhile, photovoice and various forms of participatory photography and photo-elicitation have gained growing attention in several fields of geography and environmental studies, increasingly explored as methods to recover subjugated knowledge among marginalized groups. Sometimes complementing other methods, photovoice has been engaged to create space for community members to lead researchers in exploring landscape transformations, emotions, relationships, and the processes of producing visual knowledge (Fantini 2017). Past literature also explores how photovoice might make “culture” visible in ways that elude more conventional research approaches and might be constitutive of efforts at decolonizing research processes (Cook 2015; Mark and Boulton 2017). Although photovoice methods are sometimes tied to social justice goals, their purpose is usually not to pursue highly defined policy issues from the start but rather to realign the power relation in research, creating possibilities for nonacademics to lead decisions over what needs to be visualized and better understood and what interpretations (and potential future implications) could and should be embraced. In some cases, photovoice research is linked to feminist epistemologies that trouble dominant linear interpretive frames and patriarchal modes of hierarchical knowledge generation, having the effect of “making the familiar strange” (Mannay 2010).

Articulating the importance of visual methods to support local solidarity and activism in regions affected by large-scale mining, Bell (2016) discussed photovoice as a productive tool for local organizing in communities fighting coal companies in Appalachia in the United States. Addressing other forms of resource management elsewhere, conservation and geography-oriented photovoice work has explored experiences of using community photography to go about “legitimizing local perspectives in conservation” (Beh, Bruyere, and Lolosoli 2013, 67). Beilin (2005) explored how farmers, through a photovoice project, constructed views of landscape change out of their cultural understandings, an activity that “gives social and biophysical researchers insight into the usefulness of the landscape metaphor in connecting activity and outcomes, history and daily experience.” Beilin’s

(2005) work shared reflections from engaging eighteen farm families and resonates with analyses by Friess and Jazeel (2017), in a previous issue of this journal, questioning the exclusionary dynamics and biases through which dominant “landscape” research paradigms tend to operate. Notwithstanding this growing body of literature, there is scant work discussing participatory photography and local visual narratives in contexts of artisanal and small-scale mining, although economic inequalities and limited livelihood options continue to drive more and more people into such mining activity globally (Hilson et al. 2017; Lahiri-Dutt 2018; Spiegel et al. 2018).

Here I explore a visual storytelling experience situated within a multimethod research program in a region where many families combine mining and farming in their livelihood strategies. My research in Central Kalimantan’s mining areas spans more than a decade (dating back to 2005); here I focus on one aspect of the visual research conducted in the 2016–2017 period in partnership with a nongovernmental organization (NGO) with which I have been collaborating. The motivation behind photovoice first emerged from the recognition that participatory visual research could be an engaging way to learn about place attachment, local histories, and struggles. Further motivation emerged after seeing a United Nations report on landscape degradation in Gunung Mas District in 2016, at a time when policing and arrests were taking place to tackle “illegal” mining in various parts of Indonesia. The report’s aerial photos showed negative impacts of mining (United Nations Institute for Training and Research 2016), yet a sense of social context was missing. The remote sensing vantage point and its accompanying technical narrative not only simplified landscape representations in ways that risk reinforcing a “hegemonic” way of seeing (Rose 2014) while reflecting the “monopoly of knowledge production by professionals” (Van Auken, Frisvoll, and Stewart 2010, 374) but also implicitly raise the question of what its omissions and detached ways of seeing might be overlooking. The first section provides background for contextualizing visual practices in geography, outlining some of the tensions, hopes, fears, and philosophies surrounding photographic tools and community-engaged visual work in particular. The next section offers some brief perspective on socio-economic and ecological changes unfolding in relation to small-scale mining in Central Kalimantan

and methods I explored in pursuing photovoice dialogues near the homes of mining families. The following sections discuss reflections shared by women in Tewang Pajangan village, focusing on participants' photographs and intergenerational dialogue; exploring changing landscapes, emotions, and affective communication that visual storytelling evoked; and focusing on six women's photos presented to tell stories of how the community was being transformed. The conclusion discusses implications, reflecting on anxieties shared about the future of a village and reflections on geographers' roles in ethically pursuing visual knowledge production about people and places and the contingent (sometimes unpredictable) meanings associated with image production.

Geographies of Photo Making and (Dis)Connection: From Landscapes to People

In an era in which geography as a discipline is increasingly grappling with the powers of visual agendas and imagery in public socioenvironmental debates (Thomsen 2015; Burke, Ockwell, and Whitmarsh 2018), recent geographical scholarship on mining landscapes and remote sensing has advocated making satellite images more accessible, free, and better linked to local knowledge and government decision making (Fisher et al. 2017). Especially with geographers dedicating vast amounts of attention and resources to remote sensing, questions about other forms of visualization and philosophical questions about the nature of photography itself are exceedingly important: What kinds of nonaerial photos matter in a given context and for what reasons? How might processes of producing visual knowledge matter? If photos provoke powerful emotions, what words and emotions might certain photos in resource frontier situations evoke?

Hinting at the first of these and the broader question of photography's place in society at the theoretical level, Barthes argued that photography must be understood as "a magic, not an art." Engaging Barthe's writings, Tsakiridou (1995) contemplated the notion that photography can be like a "wound" and "can deceive not because it distorts what is out there and presumably real, but because it seems to produce it with such an excess of clarity that it leaves us no other option but to believe blindly in

it" (273). Photography, in any form, masks and reveals simultaneously and can be deeply embedded in larger contentious social and political processes. Tyner, Kimsroy, and Sirik (2015) discussed contexts in Cambodia where landscape photographs functioned as "political instruments used in nation-building" (566). There is a long history of using photos to fit people and landscapes into national narratives of modernization in Indonesia—as argued in Strassler's (2010) book *Refracted Visions: Photography and National Modernity in Java*. As visual representations of grand-scale transformations linked to changing landscapes continue to multiply in the current era, there is now a growing body of work reflecting on both the positive potentials and problems concerning the role of photography in ecological critique, including how photography might at times inspire "awe and anxiety" without attending to the experiences and agency of people in regions depicted (Schuster 2013).

As visual methods have proliferated in geography and across disciplines (Tolia-Kelly 2004; Rose 2014, 2016), participatory photo-elicitation methods have become increasingly popular in some subfields. Such methods transfer the semiotic responsibility of constructing visual meanings from outside researchers to community participants whose voices are often not heard in mainstream policy discussions. This transfer of roles might not always be complete, as "outsiders" might still subtly influence participants' knowledge production processes and post-fieldwork interpretations; however, it might be intended partially (for some academics) as a means to counter the long history of complicity that geographers have had in colonial practices of visualizing environmental landscapes as "empty" places, omitting people and communities from "nature" and "frontier" narratives, and constricting voices in dismissive fashion (see Braun 1997). Photovoice (which initially was popularized in public health literature in the 1990s) can be driven by many interests in navigating relationships between and within social groups in changing ecologies, as underscored in the expanding body of literature on the visualization of water management (Maclean and Woodward 2013; Bisung et al. 2015; Fantini 2017).

The need not to overromanticize the power of participatory visual methods is also an occasional point of emphasis in the literature. Higgins (2016) stressed that photovoice carries ever-present risks of disempowering subaltern voices. Simmonds, Roux, and

Avest (2015) discussed how possibilities for promoting creativity and critical reflection are not always realized, and Del Vecchio, Toomey, and Tuck (2017) discussed the need for more attention to sovereignty and the rights of refusal in such work, to “involve participants more deliberately in the collection, generation and sharing of data” (358). It has been argued that photovoice methods are best suited to “refine the conclusions that traditional ethnographic methods have already uncovered,” recognizing that photo-elicitation practices and similar visual approaches that cede power to community members can “create a more ethical research situation” and “generate new forms of knowledge which cannot be developed any other way” (Packard 2008, 64). Drew, Duncan, and Sawyer (2010) discussed photovoice with youth, describing “a beneficial but challenging method for health research” (1677), and the benefits of photovoice as a tool for evaluating land management with farmers have been stressed elsewhere, where the extensive time needed for this method was conveyed alongside its “unrealized potential” (Kong et al. 2015). Photovoice work addressing local adaptation to climate change has accentuated the value that participatory methods have for community planning, stressing its practicality (Bennett and Dearden 2013), and McIntyre’s (2003) article “Through the Eyes of Women” has inspired a variety of works using participatory photography to explore situated positionalities in reimagining place.

Although this growing corpus of literature might appear to suggest that photography is becoming participatory to new levels, this is not always the case. Tschakert (2009) included participatory diagrams making using a social justice mapping approach in research in artisanal mining communities in Ghana, but the overwhelming trend for studies and reports on mining is to use photos but not to explicitly explore photographic practices or conceive of people in mining communities as potential photo takers to steer the discussion. Meanwhile, exotic shock-producing images of poor Indonesian miners in dangerous places, using destructive technology, frequently appear in global magazines as well as academic journals. In some instances, whether consent was obtained from community participants prior to the publication of photographs is a matter worth querying, as is the broader ethics of what Li (2014) termed (discussing land and agriculture) “images of deficiency” (597)—images that create disempowerment through sensory experiences of local

backwardness being the problem needing display (and discursively framed within larger narratives by outsiders). Using a camera to picture small-scale mining or its social or environmental effects is inevitably an act of representation that occludes some forms of knowledge while prioritizing others, advancing certain ideas instead of others, and the long-term consequences of a photo—and of photo-making processes—can sometimes be deeply ambiguous.

Resource Worlds, Embodied Places, and Methods of a Visual Storytelling Project in Central Kalimantan, Indonesia

Envisioning extractive landscapes and places requires appreciating how a plethora of social and ecological worlds are entwined, how meanings are construed, and also how simplifications can mislead. Through both visual and rhetorical devices, simplifications abound when depicting relations among people, places, and resources linked to small-scale miners’ activities. Verbally, national Indonesian mining authorities often refer to small-scale mining as PETI (*Penambangan Tanpa Izin* in Bahasa Indonesian), meaning “mining without permits,” framing illegality as its defining feature. Such framing sometimes masks state actors’ own economic “entanglements” in mining frontiers (Peluso 2018); this activity is also recognized in other narratives as “people’s mining” and “informal mining” (Lahiri-Dutt 2018). Whatever the nomenclature, this almost entirely unlicensed sector expanded dramatically after the decentralization era began in the 2000s, after the fall of Suharto, with many often-neglected social dimensions to its historical and ongoing growth. In the early 2000s its growth emerged to a significant degree due to critical limitations on livelihood choices and economic struggles experienced by smallholders in agrarian sectors and other realms of the economy. Such mining was then encouraged by some district government officials in Central Kalimantan and other provinces, exploited by larger companies (who used small-scale miners in guiding mineral prospectors to rich deposits), albeit contested by environmentalists (Tsing 2005; Spiegel 2012). Robinson (2016) wrote that small-scale mining has proven difficult to regulate partly because it is “often characterized by ‘boom and bust’ cycles in which migrant miners descend on an area where there are stories of mineral finds, compete to extract the resource and

then depart as quickly as they came” (150–151). Labor dynamics can vary significantly within mining territories, with local and migrant miners working in dynamic labor arrangements and conditions.

In some settings, difficulties in acquiring community mining licenses have been a challenge for smallholders involved in gold mining, owing to competition with large-scale mining companies for resource rights, bureaucratic processes, expensive informal taxation systems that incentivize powerful actors to maintain the status quo, and other factors (Robinson 2016; Barney 2018; Peluso 2018; Spiegel et al. 2018). Astuti and McGregor (2017) discussed recent initiatives in Central Kalimantan to recognize *adat* (customary rights) laws, noting that some artisanal gold miners initially opposed the implementation of *adat*, “fearing it would restrict their activities” (16), also noting that efforts at becoming recognized through customary rights are part and parcel of some artisanal mining communities’ collective struggles. As discussed later in the context of Gunung Mas, a district name that translates to “gold mountain,” some smallholders have imagined replacing their small-scale gold mining livelihoods with oil palm, a booming sector in much of Indonesia (see Elmhirst et al. 2017). Meanwhile, many people in Gunung Mas have found gold extraction to be a necessary income source, resulting in mining in rivers, along river banks, and in deforested as well as forested areas. Since the 1990s, gold mining in Tewang Pajangan has grown as an income source for both Javanese migrants and local Dayaks; some estimates from people I met in the village suggest that 75 percent of village citizens of Tewang Pajangan work in the small-scale gold mining sector.

Visualizing social and ecological change in Tewang Pajangan thus inevitably requires giving attention to dredging technologies for gold extraction (equipment powered by hydraulic pumps) and their landscape impacts, which are pervasive throughout the district. Yet, the “technology gaze”—and what might be conceptualized sometimes as a palpably *masculinist* gaze, fixated with technology in male-dominated mining discussion¹—has often characterized the focus of outsiders who visit mining regions; yet mining worlds are never just about technology, nor are “impacts” just about the easily viewable physical impacts on the landscape. Gold has long been an important part of Dayak culture, and Tewang Pajangan has, like any other village, a

myriad of places, landscapes, ecological stories, and social relationships that could also be visualized. Ideas about “place” and the relations that shape particular place-based knowledge could be framed through diverse individual and collectively shared histories, inflected by class, gender, age, ethnicity, and a range of idiosyncratic experiences that might defy such categories. The analysis that follows, focusing on the photographs and narratives of six women who participated in a photovoice exercise, draws on research from a larger multimethod study that included gender mapping to explore women’s and men’s diverse roles in mining and farming and in family and community life; it also included ground-truthing of satellite images to explore perspectives on landscape change due to small-scale mining, approaching ground-truthing as an endeavor that required combining ecological oral histories with aerial photo interpretation (Nightingale 2003), as well as life history interviews with men and women from government and other community members. The photovoice approach adopted drew on the premise that cultural values of landscapes can powerfully shape “an individual’s sense of being and belonging” (Tolia-Kelly 2004, 7) and collectively shared feelings of hope, nostalgia, loss, and what Askland and Bunn (2018) termed “ontological anxiety” to reflect how mining can radically transform senses of being, identity, and home. The approach also sought to take further a key point in a review article by Großmann, Padmanabhan, and von Braum (2017)—the need for more attention to processes of identity formation that contextualize gendered experiences of environmental transformation taking place in the mining sector in Indonesia.

To plan photovoice activities, I worked with a team of practitioners in a community development-focused NGO—Yayasan Tambuhak Sinta (YTS)—based in Palangkaraya, a few hours’ drive from Tewang Pajangan. Engaging customary leaders and village authorities, we discussed whether specific issues should be suggested as interesting topics for visualization. For example, we wondered about focusing on the significance of holding “community mining” (*Wilayah Pertambangan Rakyat* [WPR]) licenses or technological change tied to the introduction of specific equipment such as excavators (brought to Tewang Pajangan in 2014 when new roads were built) that benefited the more economically well-off people involved in small-scale mining. We did not want to be seen as looking for particular kinds of stories,

however. Our intended philosophy was to encourage participants to tell stories they wished to relate, to share expressions of community, place, and landscapes as they wished. The prompt was broad: What stories might you like to tell about this place?

Midyear in 2017, six women and six men were selected in conjunction with the village government and customary leader, based on the criteria of having experience with both mining and farming. They participated in orientation workshops that included photography training and discussion of broad goals and ethical issues that photographers needed to consider—including, for example, not depicting people in negative portrayals. Some participants expressed concern that they were not expert photographers, and reassurance was given that the quality of the photos was far less important than the meanings they explored. The groups were divided into subgroups in which three people shared pocket cameras, with each person free to take photos on any theme over the next five days. A few weeks later, the photographers came together at Tewang Pajangan Village Hall to discuss issues and spaces depicted, from spaces of mining to those of home life, farming, and beyond. During the discussions, photographers presented their photos and explained stories and objectives behind each photo. To generate discussion, facilitators asked several key questions simultaneously to photographers and other participants who were invited to attend. Adapting from the list of queries outlined by Wang and Burris (1997) in their approach, the questions² aimed to create spaces for both personal narrations and collective deliberation, negotiating stories of past, interpretations of present, and reflection on aspirations for the future.

In both the women's and men's groups, experiences in narrating photos focused on the importance of rehabilitating land affected by mining along with numerous other themes. In the women's group, an especially prominent theme was that of intergenerationality in lived landscapes—how younger and older women have been experiencing and seeing different worlds. Participants did not shy away from depicting environmental devastation, contrary to what might be surmised by outsiders' portrayals of mining community members as people who care more about economics than ecologies—a simplistic dichotomy that remains pervasive in mainstream scientific literature. On the contrary, listening to women speak meant paying attention to anxieties embedded in difficult

realities and powerful emotions tied to changing landscapes—with appreciation of the significance of gold mining for community income, changing senses of home and community, along with corporeal and psychological effects of ecological transformation. Dialogues also brought forward articulations of the desire for sovereignty and decreased dependence on foreign traders who come to vend food to villagers (as local farming had declined), among other socio-environmental relations. I reflect on women's photo-based dialogues here, analyzing this exercise with a lens that seeks to harken to some of the many forms of what Haraway (1991) called *situated* and *partial knowledges*, with the plural form of this latter word alluding to the often-neglected recognition of diverse legitimate, vibrant knowledge forms. I discuss dialogues surrounding just some of many interrelated themes that emerged as prominent in photographers' choices. Rose (2008) argued that reflection on visual methodologies should be concerned with (at least) three realms: the site of production of an image, the site of the image itself, and the site of audience. The following discussion engages each of these, weaving back and forth between the photographers' chosen scenes, their interpretations, and the site that constituted their audience.

Visual Stories and Intergenerational Dialogues

Photographing Microcosms of Socioenvironmental Change, Narrating Situated Moments

I begin with reflection on choices made by Ritamiati, who is thirty-six years old with considerable experience in rice farming, having lived in Tewang Pajangan her whole life. She presents a photograph (Figure 1) that represents, for her, a flooded place in the community and a history of struggle to support families. She tells the group assembled in Tewang Pajangan Hall that although floods have occurred since ancient times and flooding occurs in the village whenever heavy rain comes in the upper Kahayan River, “this year there are a lot more floods than last year.”³ Along with other deforestation-inducing activities such as oil palm plantation, increased gold mining activities have rendered land more desolate from deforestation, contributing to the floods. She notes that “some members of the community will use this place for playing and bathing.” Ritamiati's photograph might thus appear to show, first and



Figure 1. Herlina #1: Taking a bath during a flood. “I took this photo at the edge of the village on the way to the community plantation field. This part of the village always floods when the Kahayan River is full. ... Some members of the community will use this place for playing and bathing.” Photo by Ritamiati; reproduced with permission.

foremost, flooding problems created by extraction and the contamination this causes. Indeed, according to a community health worker from Posyandu (a health service unit) who responds to the image, bathing in the flood cannot be a good hygiene practice as the water is contaminated by household waste and mining activities. Yet the image taps into various other meanings, too. For Ritamiati, there is nuanced history to understand here. Recounting how mining activities, especially those of the men, have increasingly involved heavy equipment and waste discharged into the river, she recalls how people used to pan for gold using simpler methods with less impact and that the flooded rivers were once clean and clear. She explains that her purpose in taking this photograph was to show activities of women and children in the afternoon during floods, highlighting the impact of the contamination related to the increased heavy equipment and waste, and she notes that “all of the communities’ plantations are always full with water,” explaining that this was one of the few places in her community where she could in the past—if only sometimes—plant rice fields.

This picture is one of several images presented in the group that convey why so many villagers have turned to mining as well as complex interrelations between mining, farming, and other daily activities. It is widely understood that income from mining is larger and more predictable. Although some farmers still plant rice, floods (aggravated by mining) routinely undermine planting and harvests. As some women engage in rice farming while their husbands work in mining (and some women work in manual-methods gold mining, too), the image is imbued with multiple gendered notions of place—as a place of family interaction, community, economic labor, and socioenvironmental interaction. The photograph draws the group into dialogue on a failed government initiative; the rice field was the site of a state-sponsored development program for optimizing agriculture, but it failed partly for reasons that are intimated in the photo (flooding). This year, many villagers did not harvest; Marti, one of the other photographers, a forty-three-year-old part-time miner and part-time farmer, reaped only a little harvest this year because her rice fields were flooded. The



Figure 2. Herlina #6: The grandmother who weaves. “This lady is one of the few women who still weaves. As shown in the photo, the lady is cleaning the raw rotan that she got from the forest. She is a widow, as her husband died a couple of years ago. ... She works in her plantation and weaves the *Lonjong*.” Photo by Ritamiati; reproduced with permission.

image also invites discussion on wider challenges. One participant notes that livestock ate rice plants and that last year a caterpillar outbreak destroyed plants, including paddy seeds and grasses. Ritamiati also displays a second photograph that she took (Figure 2), showing her neighbor cleaning rattan to make Dayak backpacks and rattan handicrafts. She explains that after rattan is taken from the forest, it must be dried before it can be used but that it is exceedingly difficult to find rattan because the forest is becoming overtaken by mining activities. She notes, “This lady is one of the few women who still weaves.”

Whereas the photographers’ choices earlier communicate, among other themes, experiences within changing environments in the face of increased mining, other images produced by the photographers are flashpoints for linking explicitly to the visual frames of local livelihood geographies in relation to global economic markets. Bu Marti uses one of her photos to discuss the impacts of rubber prices. The number of rubber farmers and tappers decreased over the last couple of years, she explains, because the latex price decreased. The community saw that gold mining was more promising for faster and higher income.

“Rubber prices used to be above one million Rupiah for one kwintal, but now it is only Rupiah 700.000/kwintal,” she notes, also stating the price was as little as Rupiah 300.000/kwintal at one point. Some participants expressed that they felt happy when they saw the rubber plantation like the one shown in her photo (Figure 3), because there are not many rubber plantations left in Tewang Pajangan; the image was suggestive of possibilities “still there.” Looking at the photo, Bu Marti reflects on how many villagers “sacrificed” their rubber plantations and used them for their mining businesses, with some in the room estimating that the village lost around 50 percent of the rubber plantations due to gold mining. Yet, she notes that she, too, engages in gold mining when needed:

Now as a widow, I am the only income earner for the family. In order to meet the family’s needs and the children’s school fees and allowances, I work in my rice field while raising two cows. And sometimes I work as a daily laborer in anyone’s field, or find *rebung* [bamboo shoots] and edible ferns in the forest, and sometimes I also join the women miners to do gold panning.



Figure 3. Marti #1: Rubber plantation. “The rubber plantation in the photo belongs to one of my neighbors. I used to work there as a rubber tapper. But I quit one year ago because the rubber price went down. ... My husband died a couple of years ago. He left me with three children. ... I am the only income earner for the family. In order to meet the family’s needs I work in my rice field while raising two cows. And sometimes I work as a daily laborer in anyone’s field, or find *rebung* [bamboo shoots] and edible ferns in the forest, and sometimes I also join the women miners to do gold panning.” Photo by Bu Marti; reproduced with permission.



Figure 4. Rosida #1: The Blue Lagoon. “The lagoon in this photo is a pit left behind after mining activities. It’s never dry, not even during long periods of drought. Now, the lagoon is used as a swimming pool. The community call it DanauBiru or Blue Lagoon. ... Almost all of the children in Tewang Pajangan know how to swim. I took this photo because I like the view and because I often bring my children to swim here, especially during the school holidays.” Photo by Bu Rosida; reproduced with permission.

Although village photographers were not asked to necessarily focus on creating a sequence of interrelated photos to tell a single coherent story that flows, Bu Rosida decided to photograph multiple scenes of degraded mined land and gave rich perspectives on mining terrains as places of current, anticipated, and desired transformation. This sort of approach dovetails with what Harper (1987) suggested in early scholarship on meaning making through visual ethnography—that a narrative and sequence can emerge through the organization of photographs, wherein meaning lies “in the structure and organisation of the whole” (p. 6). Bu Rosida’s first photograph (Figure 4) is a lagoon in a former mining pit that is now used as a public swimming pool, which became the subject of lively discussion. She took the photo to show how a former mining location is being utilized; it is now a swimming pool available to all villagers, and although some participants expressed strong health concerns about this use of mining land, her purpose was to show that mining areas can have many functions after gold deposits run out. She notes, “Almost all of the children in Tewang Pajangan know how to swim. I took this photo because I like the view and because I often bring my children to swim here, especially during the school holidays.” She sees mining areas that have become swimming and recreational areas and also pits that have potential to become fish ponds



Figure 5. Rosida #2: Scrub after mining activities. “This scrub in this photo is not far from the DanauBiru. It is a remnant of the mining activities. ... This kind of location is really difficult to claim back for farming, because the landowner must clear it first. And usually the miners will come back to the location again, based on the Dayak belief that the gold ‘breeds.’” Photo by Bu Rosida; reproduced with permission.

and vegetable growing areas, among other possibilities. Land damaged by mining, she says, can be used to eventually generate various other sources of income for the community, and there is discussion on the growing dependency on foreign fish vendors and vegetable vendors, amid diminished local food production capacity.

A second photograph by Bu Rosida, showing shrubland on former mining tailings (*ambuhan*; Figure 5), provides stimulus for further discussion of alternate land use. The land here, she explains, was neglected for a couple of years so it became overgrown with grass and small trees. According to the village field agriculture promoter who participated in the dialogue, this kind of land can be replanted with cassava and coconuts. Some participants surmise that this wasteland could be replanted and that small trees could be used to protect fish ponds located nearby. Bu Rodisa notes, however, “This kind of location is really difficult to claim back for farming, because the land owner must clear it first. And usually the miners will come back to the location again, based on the Dayak belief that the gold ‘breeds.’” Participants also share the view that government land rehabilitation programs for these areas have been quite ineffective, with more local engagement on budgetary planning and priority-setting needed. Bu Rosida also presents a third photo, this time showing former mining pit turned fish pond (Figure 6). One participant’s immediate response is



Figure 6. Rosida #3: The fish pond. “The fish pond in this photo ... is in a pit left behind after mining. ... You can see the fish cage in the photo—it is used to gather the fish in one location so it is easier to feed the fish. ... The fish are used to feed the family, and some may be bought by the community.” Photo by Bu Rosida; reproduced with permission.

that using such mining pits as fish ponds is not safe, or effective, given that they are located far from the village area: “If someone wants to have a fish pond, it would be good to have it in the community area so it would be easier to monitor and manage.”

Tsing (2005), in wider discussion of Indonesia in earlier eras, theorized how “the identity of the nation became entangled with forest destruction” (16); in Tewang Pajangan, women photographers articulated recently intensifying challenges in distinct places where extensive deforestation combined with mining damage and diverse other land uses all coexist in entangled processes of identity construction. They are also processes, as the six photographers stressed, of trying to “make do” in conflicted landscapes. The photographers and their audiences reflect on how several community members have tried to plant oil palm trees in unproductive mining locations as their main strategy for transition. They explain how former mining locations need to be flattened, holes filled in, and oil palm trees given time to grow before they can give results; oil palm represents a potentially significant income source when mining deposits are gone. Other participants suggest planting Sengon trees, but according to the participants who prefer oil palm trees, planting Sengon does not provide a sustainable income as it can only be harvested once and takes more time. Some participants express doubt that either oil palm or Sengon trees could grow well, because former mining lands have lost their fertile topsoils.

Photographic Explorations of Community, Intergenerationality, and Uncertain Futures

Interrelated with the preceding discussion, a deeply felt theme in the group experience concerns how photovoice positioned economic and environmental changes in relation to sentiments about home, community, and intergenerational connection. Choices made by the participating women would underscore cultural identity concerns, uncertainties about the future, and feelings of responsibility—both as photographers and as community members. For example, Herna, a fifty-nine-year-old in the group, presents a photograph along with concerns about challenges in giving future generations what she and elders used to have. “I don’t want the young people to lose their ancestral identity,” she says, insisting that Dayak culture needs to be handed

down to the next generation, and this is why she presents an image of the Sandung (Figure 7) used to honor ancestors in the local Dayak belief system (Hindu Kaharingan). In the Hindu Kaharingan belief system, the community believes that the dead need to be burned or hanged, but after the Christians and Moslems came, the dead were buried; so, the dead were buried, but to respect the ancestors, a couple of years later, the family members would take their bones and keep them in the Sandung. The community needs a large budget when the ceremonial movement of the bones into the Sandung takes place, and cows, pigs, and buffalos are sacrificed. Although many villagers are Christians, the community has continued practicing Hindu Kaharingan rituals as part of their Dayak identity. Linking concerns to the impacts of mining, she notes, “In 1978, the Sandung was moved to the edge of the main street, due to erosion of the riverbank. Every time it was moved, the owner needed to spend a large amount of money on sacrificing cows and pigs.”

Also representing the scene of a building that is recognizable to everyone, another photographer in the group shows subtle changes to traditions around homes, showing a common type of Dayak villagers’ house and a dog (Figure 8). She explains that the community used to raise dogs for hunting but now only raises them to stay at the house:

I took this photo to tell you the story of my dogs. In my early days, when my Dad was still alive, we raised dogs to hunt pigs. If we got pigs, we would eat some of the pork or give it to some family relative. Some of the meat would be exchanged for rice and salt. ... My house and land resulted from my husband’s occupation as a pig hunter. Now, I raise three dogs, and I love them very much because they have given me and my family many benefits. ... [M]y husband died a couple of years ago. Now my occupation is to give massage to pregnant women and to help women to deliver babies—we usually call this *dukunberanak* [traditional midwife]. ... I got this skill from my mother, and she got it from her mother, or we can call it a talent derived from my ancestors. I have already helped many women to deliver their babies, maybe more than a hundred women. ... Actually, I wanted to study midwifery from an early age, unfortunately my parents didn’t have the money to allow me to continue my study, so now I only work as a traditional midwife.

Before massive increases in gold mining activities that transformed the region, many villagers worked as



Figure 7. Herna/Mama Katong #1: Sandung: A Dayak legacy. “I took this photo to tell you the story of the Sandung, as it is a Dayak legacy, and I don’t want the young people to lose their ancestral identity. A Sandung is a place to pay tribute to the ancestors and to ask for protection, according to the customary Dayak belief system [Hindu Kaharingan]. Even though none of the villagers follow this belief system anymore, some families have still kept this Sandung ... in 1978, the Sandung was moved to the edge of the main street, due to erosion of the riverbank. Every time it was moved, the owner needed to spend a large amount of money on sacrificing cows and pigs.” Photo by Herna; reproduced with permission.



Figure 8. Herna/Mama Katong #3: My dogs. “In my early days, when my Dad was still alive, we raised dogs to hunt pigs. If we got pigs, we would eat some of the pork or give it to some family relative. Some of the meat would be exchanged for rice and salt. ... With the help of our dogs, my husband hunted pigs to sell. ... Now, I raise three dogs, and I love them very much because they have given me and my family many benefits. I am a widow now. ... [M]y occupation ... we usually call *dukumberanak* [traditional midwife]. ... I got this skill from my mother, and she got it from her mother. ... Actually, I wanted to study midwifery from an early age, unfortunately my parents didn’t have the money to allow me to continue my study, so now I only work as a traditional midwife.” Photo by Herna; reproduced with permission.



Figure 9. Gardening women. “This lady is a Javanese who is married to a Dayak man. Her husband is from Tewang Pajangan. This lady really loves gardening. She plants different kind of veggies such as cassava, eggplant, chili, pumpkin, etc. She does this in order to minimize her family expenses. Her husband works as a miner. It’s one example of a creative housewife.” Photo by Ritamiati; reproduced with permission.

hunters—hunting pigs and other animals—for additional family income. Some of the meat was usually used for family consumption and some would be sold. Now, almost no community members work as hunters, she explains, because the forest is depleted and working in mining is more promising; she says that hunting now seems to only be a hobby or occasional occupation, with a sense of nostalgia, suggesting that this might not be an important activity for the future generations; she also laments that the end of this source of income hindered her own ability to study and become credentialed as a midwife.

The changing geography of cultivation in relation to homes becomes the focus point of one of the other photographers’ choices and ensuing discussions. Nita explains that with rice fields flooded and other lands degraded by mining, gardening adjacent to villagers’ houses has become increasingly necessary, discussing an image (Figure 9) showing gardening right by the house. She notes, “This lady really loves gardening. She plants different kind of veggies such as cassava, eggplant, chili, pumpkin, etc. She does this in order to minimize her family expenses. Her husband works as a miner. It’s one example of a creative housewife.” This, Nita hopes, is a strategy that will reduce dependence on foreign vegetable vendors—who are referred to locally as “uncles” yet also critically thought of by some as being part of an evolving

economic trade system that has replaced the sense of (relative) self-subsistence that villagers had in the past. She explains that vegetable vendors—often Javanese immigrants living in Kalimantan—cannot always access the village due to the floods, but the relation with the foreign vendors has become significant because the village no longer has the locally grown food supplies and sense of self-sufficiency that it had in previous years. Using house yards as gardens could, some women hope, generate more food for family consumption or for selling to supplement family income. The village areas and surrounding areas have both been widely mined, which, Nita says, makes it very difficult to find further good areas for farming, stressing the importance of household gardens in the future.

Anxieties shared by Ibu Elis, a forty-nine-year-old farmer, lead to further reflection on challenges that girls and young women will encounter in the years ahead. She shows photographs of baskets made of weaving (*lanjung*; Figure 10): “I took this photo to show one of my skills as a Dayak woman, namely weaving the Lanjung [a Dayak backpack]. ... I earn quite a lot of money from weaving Lanjung. ... As a housewife, I don’t have an occupation or own hydraulic equipment, so this one [weaving] is my income source. With this, I can help my husband to fulfill the family needs.” She also shows a photo of banana trees (Figure 11), evoking images that, for her, depict another income source that women might create to supplement mining income: “This is my other activity besides weaving and raising chickens. From my banana plantation, I have more additional income.”

Ibu Elis stresses the importance of cultivating skills for these forms of work, which used to be common in her earlier years, noting that young generations of women have not had the same exposure. She says, “If I die, who else can do it?” Because income from mining is uncertain, she says that “we need to do this,” but “we cannot plant bananas anymore since there is no space to plant,” and “now there are not many people who know how to weave, only elderly people.” Her discussion turns to the importance of strengthening the power of women’s groups. In the previous year, a government development program provided banana tree seedlings for a village women’s group but this initiative failed to gain traction. Many in the community plant just a few banana trees in their backyards because fertile



Figure 10. Elis/Mama David #1: Weaving *Lanjung*. “I took this photo to show one of my skills as a Dayak woman, namely, weaving the *Lanjung* [a Dayak backpack]. My mother weaves, so I also wanted to learn it. ... We need to find rotan in the forest, and it has a lot of spines. There is a risk of getting stabbed. So that’s why not many people work at rotan weaving. Only poor people want to do this kind of occupation. ... As a housewife, I don’t have an occupation or own hydraulic equipment, so this one [weaving] is my income source. With this, I can help my husband to fulfill the family needs.” Photo credit by Ibu Elis; reproduced with permission.



Figure 11. Elis/Mama David #3: My bananas. “This is my other activity besides weaving and raising chickens. From my banana plantation, I have more additional income. I only plant *pulolau* bananas, because they are really in demand. Usually, it is used for dried banana, cakes or baking because it tastes sweet.” Photo by Ibu Elis; reproduced with permission.

agriculture area is so limited due to mining’s impacts. The photographs here again become “emotionally resonant objects” (Rose 2004, 549) that summon forth sentiments of loss and worry but also hope and possibility, to varying degrees.

Faced with all such challenges, one might think that acts of “seeing” mining scenes trigger negative affects; indeed, painting scenes of extraction with broad-brushstroke narratives, foreigners often capture images of the materiality of “the environment” in Kalimantan to convey stories of damage and the global climate change crisis.⁴ Yet, none of the depictions are meant by the photographers to portray mining as the unidimensional culprit that foreigners sometimes—abstractly—depict in narratives of extraction, and they are not merely stories of loss; rather, they are layered in historical memories and intergenerational reflection about socially and geographically differentiated struggles. Bu Restiana, a



Figure 12. Equipment at the edge of the Kayahan River. “I took this photo to tell a story about a husband who works as an alluvial miner. The mining equipment shown in the photo is what is typically used in Tewang Pajangan and neighboring villages along the Kahayan River. The front part is the hydraulic pump, the highest part is the stage to control the pump, and at the back there is a shack that is used for resting while working. The pipe at the bottom of the river is used to suck up the sand that flows into the sluice, and then the sand goes back into the river. The pile of sand in the front part of the photo is waste sand; we call it *ambuhan* in Dayak. The waste sand still has gold in it and it can be mined again based on the Dayak belief that the gold multiplies itself. My husband also works as an alluvial miner and he owns mining equipment such as in the photo. There is always mining activity during both the rainy or dry season.” Photo credit by Bu Restiana; reproduced with permission.

fifty-one-year-old elementary school teacher, speaks of the importance of mining for not just past generations but also for the young and for creating a future. One of her photographs (Figure 12) depicts a dredge—what local people call *lanting*—at the edge of the Kahayan River: “I chose this to show the main livelihood in the Tewang Pajangan community.” This *lanting* is typical of the mining equipment used in Tewang Pajangan in the river or swamp (the other type of equipment is hydraulic jet equipment, mostly used on land). With income from mining, she says that people can build good houses, buy cars, and provide good education for their children. “One day, gold deposits will be completely

exhausted,” she tells others, stressing the “need to save and invest.” Although Restiana recognizes that the community “should have an alternative livelihood” and that major environmental and safety issues constantly lurk, she explains that parents do use mining income to invest in alternative futures; far from the trope of “quick spending”⁵ that sometimes characterizes academic discussion on mining and (often male-focused) spending in Indonesia, she explains that some families are able to give their children a better education from the money they make from mining, in her words, “with the hope that later, the children can have an adequate life even though they will not work as miners.”

Photos as Objects of Affect: With Uncertain Afterlives and Powers to Influence

Some photographs give rise to discussion on which mining methods and locations are appropriate and to the concern that the only good choice that many people have is mining. Images of mining also generate detailed reflection on being banned from using fire to clear lands for other purposes—expressing the point that if people burn land, police would arrest them and that most villagers do not have enough money to rent heavy equipment to clear their lands. Although different degrees of blame are connected with poorer smallholders or more powerful companies depending on who is narrating, many in Tewang Pajangan recognize that deforestation is a collectively produced problem but feel passionately that it is the more powerful companies, not they, who are responsible for the most serious burning problems that have effectively disallowed them from clearing more land. All of these narratives are suggestive of how photographs play active roles as “objects of affect” and “constitutive of and constituted through social relations” (Edwards 2012, 221) that extend far beyond the immediately visible material within a photograph. They also lead to the articulation of wide-ranging sets of hopes for the future among the villagers in the group, including, for example, improving irrigation channels and dams to create opportunities for farmers to plant rice; creating land rehabilitation programs and budgeting practices more in tune with local needs in village lands; collecting data to assess health impacts of mining including related waterborne diseases; and especially transforming state governance and NGOs’ approaches toward supporting women’s groups as well as changing women’s own collective mobilization efforts.

At epistemological levels, the photo narratives also invite attention to ambiguities. The six women offered knowledge here that is partial and situated; intricacies of their stories are not necessarily “representative” of the whole community, and images they share are generative of unpredictable aftereffects. Although photovoice work renders some struggles, knowledges, and emotions visible, how would outsiders interpret that which is presented? Might future recirculation (and publication) of images unintentionally reify outsiders’ paternalistic views rather than offer any meaningful empowerment? As past scholarship cautions in relation to the epistemic risks of community-engaged visual work, it

is usually the case that “beyond the photo mission and exhibition, the voice of the researcher continues to dominate interpretations of participants’ work” (Malherbe et al. 2017). Furthermore, as we collectively reflected on before and after the exhibition, visual imagery can easily lead to unintended interpretations. Images of resource exploitation and forest destruction routinely circulate in the media with calls for more policing against “illegality.” Although the use of drone images—the case noted earlier in this article—seems to be an example of photographic methods challenging corporate extractive activities in the midst of a contentious government spatial planning process (Höing and Radjawali 2017), other photos of extraction that touch on questionable land uses and forest loss linked to “local” people’s livelihood activities can easily be met with disempowering gazes—gazes that remain detached from wider histories and struggles.⁶ The nuanced intentions of village photographers in Tewang Pajangan, or indeed of other photographers, can easily be lost on interlocutors.

In their article, “Going Public? Re-thinking Visibility, Ethics and Recognition Through Participatory Research Praxis,” Dickens and Butcher (2016) cast light on broader tensions in geography on making imagery public, with worry about perpetuating simplistic assumptions of “visual outputs that tell their own stories” (528). The Tewang Pajangan visual storytelling project sought to support spaces of intimacy in which to negotiate intricate ethical dilemmas of image production, by initially inviting just a small number of local government officials to participate in an exhibition alongside others in the village. The stories told by the women led to lively discussion on overhauling the Village Fund priorities. How should the wider world beyond the village be engaged? Respecting intimate relationships and trust within the community storytelling process often requires researchers to be vigilant amidst pressures from distant donor agencies or others who might wish to rapidly “scale up” knowledge exchange by posting quick—decontextualized—“voices in the field” on global Web sites. Such dilemmas often emerge in community-engaged research involving visuals. In Tewang Pajangan, participants expressed the view that photos and stories should indeed be part of a larger photo exhibition event with more policy actors beyond the local level. Thus, in this case, the village-level photovoice exhibition led to

multiple next steps. A provincial forum was organized (with funding from the research program), enabling villager-participant photographers to present their own photos to policymakers from different provincial government departments. A suite of follow-up activities was also conducted by YTS to pursue storylines and desired action points articulated by participant-photographers for village planning. This notably led to the creation of a program to assist ten women artisanal gold panners in Tewang Pajangan to upgrade to safer mercury-free mining techniques, access markets to sell their gold at a higher price, and register formally as a women's cooperative. The follow-up work also included exploring implications arising from photovoice discussions and the community-led analysis and planning exercises with village authorities that YTS facilitated immediately after the first photovoice exhibition. In a context of ongoing governance reform where national and provincial government authorities have already clawed back authority from district governments in realms of mining and forest management, moves to implement a comprehensive land mapping are raising thorny questions about land use and rights. Ultimately, as some of the preceding reflections pay testament to, engaging photographs in resource frontiers requires engaging a variety of institutional issues and scales as well as paradoxical emotions—feelings and sentiments—that do not always neatly map onto “development” or “governance” agendas.

Seeing photographs as objects of affect also requires recognizing and engaging with subtle differences in power, gender exclusion, and class that surround their production and circulation. Photograph-focused storytelling does not necessarily reveal inequalities of life any more so than other methods and could have limitations, too. Indeed, some dimensions of community life were more articulated and visible than others during the course of the photovoice activities. Shortly after the visual storytelling exhibition in the village, follow-up discussions were pursued to more closely understand some of the complex histories around the shrinking “space” for agriculture alluded to in the exhibitions, as well as differentiated class dynamics and visions for future land use. People talked further about how, in the 2014–2015 period, at the same time that the gold rush was escalating, many in Tewang Pajangan found their land to be unproductive and sold land to wealthier villagers to focus more on mining.

Although stories told during the photovoice exhibition alluded to varied visions for future land use, “following up on the photovoice stories” meant crafting a community strategy collaboratively to bring to policymakers and other people in position of power better knowledge on situated visions for land rehabilitation.

In addition to the direct interactions by the community photographers with district- and village-level actors, presentations were delivered by project team members to national government officials in Jakarta, with the aim of communicating some of the key stories and concerns brought out in the community-based work—inevitably requiring difficult choices to be made in regard to which cultural, policy, and land-use planning issues (e.g., funding of land rehabilitation initiatives, support for mining safely in particular areas) would be given priority. After the photovoice activities, we collectively began to explore how provincial land rehabilitation funds were being earmarked for government lands only (excluding some of the community areas depicted in the photovoice work) and for bamboo planting to protect riverbanks; other district land rehabilitation funds were being discussed in relation only to income generation cultivation. The women's photovoice stories and interpretations by different government actors involved in the land rehabilitation have been opening avenues to contemplate a broader range of agricultural and land-use aspirations for the future that draw on varying ideas and priorities for a postextractive (“life after gold”) vision. The photovoice storytelling project also introduced an East Asian donor agency to socioeconomic, gendered, and cultural dimensions of community life and land use in Tewang Pajangan, prior to the creation of a donor-funded land rehabilitation project. How this donor project interacts with different local land-use visions and different priorities for land rehabilitation remains to be seen.

Contested visions for land rehabilitation constitute just some of the subtly introduced themes in photovoice that require targeted follow-up approaches. Additionally, it is notable that although the six women discussed here shared many important stories, conflicts with companies in the region did not feature explicitly in their narratives. Others living in a different part of the region, or occupying a different social status, might well have covered such topics. One might accordingly ponder the dynamics

of recruitment itself as a highly subjective influence in shaping the storytelling experience. Participants in the photovoice work were selected through a particular process—from discussions with a local customary leader and village leaders. Furthermore, a sense of “intimate” storytelling might have been conceived of very differently if the focus here had been just on a group discussion in one of the participant’s houses rather than a more robust exhibition. Although interactions through photovoice are never acts of “giving” voice (a term appropriately critiqued for its paternalistic ethos) to liberate from entrenched patterns of exclusion, they are reflections of, and adaptations to, the performative power of negotiated storytelling in socially contingent relationships.

These experiences thus lead me to suggest that geographers need to veer firmly into the “nonrepresentational seeing” that can go far beyond an image’s literal meanings, paying attention to how conflicting histories are told and how affects are communicated through—and after—photographic encounters. In this project, photovoice was accompanied by a range of other engaged methods, including life history interviewing, critical group discussion around state maps as well as free-flowing sketch maps by individuals and small groups to depict imagined social relations in land use in the past and future, and ongoing investigations on possibilities of, and limitations surrounding, community planning in Tewang Pajangan. Photovoice work should never be merely an endpoint or a quick add-on to projects but rather one dimension in sustaining and cultivating long-term community collaborations committed to building solidarity. The notion of the *encounter* becomes indispensable—a word denoting the power of the “unpredictable” (Wilson 2017). Just as Tsing (2005, 42) urged us to think of a “resource frontier” as “a zone of not yet” (“not yet mapped, not yet regulated”), thinking of visual encounters in resource frontiers requires considering multiple layers in the contingent power of visual place-based storytelling—recognizing the “not yet” known visual aspirations that participants in research might hope to explore, along with situated ethical questions of image production about everyday struggles. How do researchers assert and engage with what Mirzoeff (2011) termed “the right to look”? How might visual storytelling in contexts of forest destruction or mining both reveal and mask power relationships—and different

subjects’ positions—in ways that foreign researchers and perhaps participants themselves might not anticipate? How might photovoice processes facilitate collective mobilization for change, including community organizing to influence policymakers and those in positions of power? What is the role of the researcher in this regard?

Conclusion

Across the globe, resource frontiers are sites of visual fascination that generate narrative tensions as well as methodological dilemmas. No methods are innocent, and no resource frontiers seem to be immune from the spectacular powers of visual practice. In an age of ocularcentrism, academics use photographic practices regularly to illustrate their points for scholarly and nonscholarly audiences—often points they chose, based on images they might have selected and epistemologies they might have developed through a particular research encounter or over a longer career. They might or might not have coincided with the choices and points that people who live in the depicted areas would have made. Meanwhile, visitors now flock to resource frontiers on “tours” to photograph the exotic; for example, “voyeuristic” schemes, built on the logic of gazing at danger, allow foreigners to gain “a feeling of pleasure” in “seeing” dangerous “awe-inspiring” mining taking place in a volcanic region in East Java (“Striking Photos” 2018). Notions of resource frontiers are, as Peluso (2018) wrote, inflected by “secret knowledges” that shape understandings of territory. They are also characterized by rituals of representation, rerepresentation, and interpretation by researchers and others, in sites of image production and interpretation where photographs shared locally, regionally, and internationally become increasingly powerful “active players” (Rose 2008) in the construction of geographical knowledge. I have argued in this article that geographers have indispensable roles in ethically reflecting on methodological choices and image production in the contexts of research and in the connections that these might have to broader social relations entwined with visual cultures and struggles facing different segments of society. Both encounters around photography and their aftereffects remain significantly underresearched and undertheorized in realms of resource extraction and forest loss—where photos and affiliated meaning making might

speak to a range of physical and sociocultural changes, emotions, and senses of community.

This article has reflected on some of the issues that geographers might consider in the spirit of recalibrating practices and relations in deciding what images and narratives matter but also what it might mean to think of photography as itself a fraught act of knowledge production about socioenvironmental change. In Central Kalimantan, the case explored here taps into a story of both invisibility and visibility; on one hand, landscape destruction connected to mining is highly visible to both GIS specialists and to local people in everyday encounters. On the other hand, less immediately visible here, as in many visual methods, is how different actors narrate histories linked with images, make choices about which images matter, and approach the image–meaning-making nexus of storytelling with particular situations and struggles in mind, reflecting a range of sociological complexities. In the context discussed here, women, as photographer-storytellers, conveyed relationships between mining and other livelihoods and daily life, as well as how mining has shaped their prospects for the future. The roles that women see for themselves along with their anxieties, hopes, and aspirations for the future were partially visible in the images chosen and in the narrations they offered, in a manner not generally overt in other visual techniques.

Yet, even with methods that are highly participatory and developed with the best of intentions, landscape imagery can easily contribute to processes that stand in opposition to feminist epistemologies. Images of landscape destruction can easily become subtle forms of poverty or environmental pornography once circulated; that is, imagery detached from social context and removed from the affective and epistemological worlds of those who live and labor in resource frontiers. Efforts to move visually beyond foreigners' fascination with what Goodman et al. (2016) called "spectacular environmentalisms" or indeed efforts to engage productively with what Haraway (1988, 575) termed "situated knowledges" inevitably also leave unresolved tensions and prompt questions that loom large: How should researchers pursue visual methods while being carefully responsive to various notions—and cultural histories—of what storytelling means or might entail? Should visual work aim to explore social connections to particular places, life stories, experiences of environmental destruction, or related cultural identities?

What can researchers do better to anticipate what "afterlives" there might be in the performative geographies of images—and to support grassroots community mobilization processes to influence broader public policy realms and people in positions of power? At the more mundane level, how should researchers choose what photographs matter most and what captions go under images? What might their nonconsultation or consultation with research participants reveal about the politics of knowledge production? Should academics interested in participatory methods be more directive with research participants in processes of selecting purposes or leave participants to be as independent as possible?

These are just some of the emergent questions in a developing field of debate on visual storytelling methods and geography in extractive worlds. Although geographers have long been concerned about the colonial and imperial gaze as a legacy in our discipline, both the positive possibilities and the hegemonic potential of a visual method that might appear to account for sight and "voice" are exceptionally formidable. Photovoice, like any other method, is never inherently empowering; it might offer valuable possibilities for solidarity building and activism, yet it can also risk serving as a tokenistic gesture that can erase voice and understandings. Feminist geography engaging critiques of dominant representational practices offers avenues for experimenting with participatory visual research techniques. Although certainly not all "participatory" work falls in this spirit, collaborations that emerge in this regard might facilitate new spaces for learning with and from women living in communities affected by extraction—and for understanding how situated powers of knowledge production shape life itself, in resource frontiers and beyond.

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Notes

1. This is an indelibly *global* phenomenon and common to how development projects often portray challenges in mining worlds in Indonesia specifically (as I have observed over more than a decade of field research on mining themes); my concerns here also echo with wider incisive critiques of hegemonic masculinity around mining (not just on visualising practices per se) by Lahiri-Dutt (2012, 2013) and Ey (2018).
2. The questions included (1) What message is delivered? Or, what does the photo show? (2) How do you feel and what do you think about when you see the photos? (3) What is your reason and objective for taking the particular photo? (4) What should be appreciated in the photos in terms of art, or socioeconomic and environmental values? (5) What are the lessons learned or recommendations made from the photos? (6) Who are the key actors involved in addressing the issues, challenges, or messages in the photos?
3. Quotations appearing in English in this article are translated from the local Dayak language. As reflected on elsewhere, acts of translating “voice” are among numerous complex stages in a vast array of resituating, reinterpreting, and retelling practices that contribute the wider “politics of voice” (Wright 2018).
4. After the Tewang Pajangan photovoice exhibition, one of my research assistants and I also ruminated together on the phenomenon of foreigners “looking” downward on material landscapes (from above) to save Indonesia’s environment, recalling a well-known episode involving Harrison Ford and his visit by helicopter to Kalimantan (in 2013), which drew news headlines. After seeing deforestation, Ford expressed rage to national authorities (and was allegedly threatened with deportation); television coverage framed the complexities in a made-for-mass-consumption story of global climate change. “Global” interests in Central Kalimantan in recent years have been framed heavily around a “climate change” concern, with Gunung Mas being a hot spot. Seeking stories of relational practices of meaning making is a matter epistemologically quite different from a focus on documenting planetary damage per se; efforts at learning about visual storytelling with photovoice requires attending to situated positionalities through which connections to places, people, and meaning are construed.
5. The language of “hot money” and “quick spending” has been extensively used in numerous countries to refer to spending trends in mining villages but always

carries with it the risk of obscuring large nuances of variation, including gendered experiences in spending, saving, and thinking about economics (see Lawson 2017). In Tewang Pajangan, women photographers shared reflection on activities and buildings that were enabled partly because of mining income, with discussions paying testament to the perception that “seeing” mining requires seeing life and collective space that it supports.

6. The study also included analyzing photographic performances in other venues and spaces of policymaking before and after the Tewang Pajangan photovoice work. For example, through participant observation in dozens of government events in Jakarta, certain trends were observable—particularly in how Microsoft PowerPoint presentations by officials from various ministries showed images to raise concerns about dangers in mining, told from technical standpoints and stressing narratives of hazards.

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SAMUEL J. SPIEGEL is Senior Lecturer in the School of Social and Political Sciences at the University of Edinburgh, Scotland EH8 9LD, UK. E-mail: sam.spiegel@ed.ac.uk. His research interests include creative methods in community-based political ecology, decolonial epistemologies, theories of social change and social justice, and environmental governance.