# Perspectives on the social license of the forest products industry from rural Michigan, United States

Zoe Ketola[a], William Lytle[b][i], Chelsea Schelly[a], Mark Rudnicki[a], Matthew Kelly[a]

## Abstract

This study examines the existing social license of the forest products industry in a rural community in Michigan, located in the northern midwestern United States. This is accomplished through a series of interviews with industry and community stakeholders, aimed at understanding how they view social license and its impacts. Perceptions of natural resource management and community relations are highly related to the community's history with industries, relationships with place, and perspectives on what work is of value. The results suggest that social license varies spatially, and it is the place-based context that allows local industry to have a higher degree of license than non-local industry actors. Thus, social license is spatially contingent, based on particular socio-spatial and historical contexts. In this paper, we articulate how this spatial and historical contextualization shapes perceptions of acceptable operating practices. This paper offers refinement of the concept of social license while also considering how natural resource based industries can successfully meet evolving management challenges when their social license may be vulnerable to disturbances. Having an adequate social license is an undeniable asset for industry, while an inadequate social license is a liability. Stakeholders have the ability to damage or halt industry operations, often with just cause in the face of natural resource extraction and exploitation. Our evaluation of social licenses intends to shed light on the conditions that precipitate such conflicts.

## Introduction

The term "social license" - generally, the acceptance a company has to engage in its operations - was introduced in 1997 and has since been applied in multiple resource extraction industries to describe changes in company-community interactions.[1] This use of social license has included an understanding of how acceptance levels impact resource development operations within these industries[1] Gunningham et al.[2] state corporations comply with their social license by operating within societal expectations and avoiding activities (or influential elements within them) considered unacceptable, and define social license it as "the demands on and expectations for a business enterprise that emerge from neighborhoods, environmental groups, local stakeholders, and other elements of the surrounding civil society".[2]

It seems that industries recognize the value or necessity of their social license and its impact on their operations. Some forecasts indicate that obtaining social license may become a requirement for obtaining a legal license from government agencies, although frameworks used to incorporate social license in government licensure are not well-defined and may turn out the be prohibitive to forming trust-based community relationships.[3][4] Issues related to the government's measurement of corporations' social license include its role in licensure processes, the penalties for non-compliance, or the community's ability to halt a project if a corporation is not responsive to their concerns, are still subject to global concern.[5][6] Regardless of government involvement, social license is achieved within and given by communities. Communities can be defined as "a social unit of any size that shares common values, or that is situated in a given geographical area".[7] Communities are often

{a] Michigan Technological University

[b] Evergreen International Sustainability Solutions; USA Dry Pea and Lentil Council

[i] **Author correspondence**: Online form

viewed as people that fall in a certain geographic region, although even these geographic groups can contain multiple, smaller groups that include individuals with varied perspectives and values that shape the way they view industrial operations. Further, members of geographic communities may have different relationships with industry because they may be part of the workforce, product consumers, and potential project partners.[5] Local stakeholders may also differ in the extent to which they contribute to supplying infrastructure for industry, including access to resources and the ways they benefit from industrial activity.[8]

Communities carry social, spatial, and historical contexts; geographical spaces are socio-environmental places and communities are shaped by their shared climates and histories. Thus, the granting of social license is also based on perspectives and values developed within community context, and understanding the social licensing process arguably requires attentiveness to the spatial and historical context of any community.[9] However, how social license influences the relationships between local stakeholders and local industry is often unclear, leaving the portrait of its socio-environmental context incomplete. This work considers how the social license to operate for a local forest products industry is embedded in a local socio-environmental context within a rural community in Michigan, aiming to understand what that may mean for navigating the development of social license and potential conflicts that may threaten it.

## Unpack social license

Social license is often regarded as being synonymous with community approval, in part due to its deep historical roots in mining and forestry.[10][11][12] References to the concept of social license go back to 1996, when W. Henson Moore refers to mills as needing a "social license to operate" from the public.[13] However, given the dynamic nature of relationships, community approval fails to describe all of the essential elements of social license, such as how different stakeholder groups perceive individual nodes of the supply chain in the forest products industry and especially how the industry can achieve and maintain social license.[12] Citing our previous definition of the term from Gunningham et al., it would be most productive to view social license not as a linear relationship that directly binds industry with the community, but as a continuum, spectrum, or even web of relationships.[2][9][12][14][15][16] Dare et al. (2014)[14] outline three important facets to an industry involved in community engagement: "trust in organizations, ca-

pacity to engage stakeholders, [and] ability of organizations to respond to changing expectations" (pp. 191–192). Dare et al. (2014)[14] argue that these three elements form a vehicle that allows a corporation to increase its social license.

Traditionally, industries have used community engagement or public relations strategies and personnel to reach out to local stakeholders. The effectiveness of these methods is influenced by the nature of the industry operations, education provided to communities, and the relationship that can be formed during engagement, which occurs at both the strategic and operational levels.[14] Strategic engagement includes proactively reaching out to community leaders and finding key influencers with whom to form relationships. Operational engagement exists at the work site and includes efforts to shape how people experience an operation through one-on-one conversations and by minimizing negative environmental and aesthetic impacts. However, operational engagement is often limited by poor access to the work site, particularly in rural areas with difficult terrain, large open spaces, and lackluster road networks. When site access is limited, local stakeholders may rely on other sources, such as the media, to help them form their opinions of industrial operations.[14][17] Previous research suggests that operational engagement has limitations due to communities not trusting local managers, a failure to reach the full body of stakeholders, and the inability of organizations to adapt operations to fit with changing social norms.[14]

The forest products industry is characterized by both stationary operations (i.e., mills) and transient operations (i.e., timber harvests) that occur across a wide expanse of the landscape. In this way, forest products industries commonly cross geographic communities, thereby complicating operations level engagement. Despite the limitations, strategic engagement and operational engagement are presumed to be an important part of a corporation's achieving social license.[18] Combined, these factors influence what level of social license a community may grant industry. We hope to understand the extent to which the community in our case study grants their forest products industry its social license and how the concepts of strategic and operational engagement factor into social license to operate.

Effective community engagement should focus on building legitimacy, credibility and trust; these are the three key relationship components for understanding the continuum of social license.[11] Trust is particularly important for unlocking more effective community-industry relationships.[11][12][19] The "trust ecology" includes prior behavior and performance, personal histo-

ries, positive direct interactions and equitable procedures.[19] Building multiple forms of trust allows for greater institutional resilience, in that if one type of trust becomes jeopardized, the other forms will help retain social license.[19]

One element of trust is reputation, which illustrates how different stakeholder groups can influence the formation of social license.[17] The reputation of a corporation has also been defined as organizational legitimacy, and represents how stakeholders perceive the identity and values of an organization.[20] Furthermore, operational legitimacy is based on the action or production of services provided to stakeholders by the organization.[20] Lacey (2012)[4] suggests that social license can take a long time for a corporation or industry to achieve, but social license can be lost very quickly for a variety of factors, including changes in stakeholder expectations, technology, or other disturbances. Gunningham et al. (2004)[2] argue that meeting and exceeding regulations to build reputational capital is economically vital, saying: "in certain circumstances, [natural resource based industries] cannot afford to do otherwise" (p. 321).

The concept of social license as currently articulated is not without weaknesses. The terms often used to describe social license (e.g., legitimate, credible, support, accept, permit, approve, consent) can overlap in meaning, leading to ambiguity in their interpretation).[4][16][21] Likewise, social license becomes more opaque when held next to terms like corporate social responsibility, sustainable development, and corporate citizenship, which all seek to call attention to the same general concept of striving for an industry that balances economic, social, and environmental goals.[22][23] There has even been some specific disapproval for the term social license, such as when the term was adopted by industry and then used in conversation with the local community; stakeholders and media felt that the term was being used against them as propaganda and that it was difficult to fully comprehend.[17] Nevertheless, many natural resource based industries have become interested in analyzing their social license in hopes of cultivating more effective partnerships with local communities.[20] This study examined the social license of the forest products industry based on the perspective of both industry members and community stakeholders in a rural community located in the northern Midwestern United States. We hope that our findings will allow some refinement of the social license concept such that it can be better applied to current and future projects involving industrial activities using local natural environments.

## Case Study Background

This research centers on how the public grants social license to the forest products industry within a rural county in Michigan, located in the northern Midwestern United States. This county has about 1,000 square miles of mostly forested land and has a history of involvement with the forest products industry.[24] For this research, the forest products industry is defined as all the lands owned and the operations that take place involving the management of forests or the processing of wood within the county. Participants in the forest products industry include public and private landowners, developers, government officials, environmental activists, conservationists, the media, and more, within the geographic boundaries of the county. Individuals representing each of these groups were interviewed as part of this study. Industry participants and community stakeholders were interviewed separately with question sets aimed at understanding their roles surrounding the social license of the forest products industry.

## Methods

This study was based around three primary research questions, as informed by the preceding background on social license literature and gaps in its theory. These questions are as follows.

1. How does social license align with articulations of the relationships among the industry and the local community?

2. What current level of social license is the community granting the industry?

3. In what ways can the concept of social license be further refined based on this work's context?

The interview protocol was developed following a thorough review of existing social license literature and existing knowledge regarding the local market, its actors, and their dynamics. It was designed to elicit responses from participants about the human dimensions of the local forest products industry and asked questions about topics shaping the local forest products industry's social license. This was done to develop an understanding of the processes and practices of engagement among sectors of the forest products industry, as well as between the local industry and influential stakeholders in the community. As the interview progressed, participants were encouraged to express their personal views of their industry and their community with a

strong focus on relationships, responsibilities, values and disturbances.

Participants were recruited using a snowball sampling methodology to better understand the social license continuum by receiving names of key informants that could be difficult to identify from outside the industry.[25] Two separate sampling frames were used for each group of respondents, industry actors and community stakeholders. An initial assessment of the sectors of the forest products industry was performed using the Michigan Department of Natural Resources: Forest Products Industry Directory searchable database. Thirty-three corporate profiles were retrieved using the directory. These profiles were utilized for developing basic classifications of the industry as well as providing an initial point of contact for the interviews. Expansion of the sectors and classification system was necessary to accurately include the operations of corporations that were referred to participate in interviews through the snowball sampling method. A database on community leaders in government, nonprofit organizations, and the local media was created to initially identify community participants. These participants were then contacted for interviews and, if interviewed, were asked for additional potential participants. The snowball sampling method provides a means of determining when research is approaching saturation and occurs when names are referred multiple times and very few new names are added.[26] Referrals from outside the county were not contacted for an interview.

Fourteen interviews were conducted with individuals from industry, representing 42.4% of the identified corporate profiles. Industry was considered to be the collection of all corporations and sectors involved with forest products. Each participant was given a primary classification based on the operations of the corporation (referred to as businesses and companies in some interview responses) and the individual position of the participant. Six of the companies were given secondary classifications based on their organization spanning more than one class. Interview questions are shown in Tables 1 and 2.

Six community participants were interviewed, representing positions later classified based on categories of significance identified via the snowball sampling method. Each of the participants represented a larger interest group including developers, government officials, environmental activists, conservationists and the media. These groups were referred to be interviewed because they reflect the diversity of natural resource stakeholders and they are inclusive of influential persons and decision-makers who may shape public opinion of the forest products industry. Interview questions for community participants can be found in Table 2.

This research is based on a total of 20 in-depth interviews. Each participant agreed to the interview, consented to being digitally recorded, and was assured confidentiality. The interview protocol was reviewed by Michigan Technological University's Institutional Review Board and given Exempt status because the research posed minimal risk to participants. Information associated with individual participants was assigned a numerical value to ensure confidentiality and ensure accuracy in data processing. Each interview was transcribed verbatim. Personal information and private stories unrelated to the research were deleted from transcripts to help maintain the confidentiality of the participants. Interview participants were given the opportunity to review themes and presentations that included their data for accuracy before publication.

An iterative process was applied to the coding and analysis of the interviews. Each interview transcript was coded using a grounded theory approach, where open codes were initially used to identify themes, and codes were further refined as data analysis developed.[26] Key themes from literature and overarching themes from interview responses were used as initial codes, after extensive review of the conceptual frameworks that could be best applied to the data.[27] Although the interviews were designed around concepts of community engagement,[14] there appeared to be very little evidence of direct community engagement. Morrison's (2014)[20] descriptions of organizational and operational legitimacy were added to the axial coding to more accurately represent the relative weights of themes seen in the responses.[28] Ultimately, responses were coded as falling into one or more of three themes: trust in organizations, capacity to engage stakeholders, and ability to respond to changing expectations of stakeholders. For industry member responses, these classifications were then further analyzed to determine how the industry engaged the community, either with its organization or its operation. The influence of organizational legitimacy was analyzed by assigning industry participant responses tallies under three divisions: relationships, ethics and responsibilities. These divisions were used to understand how the long memories and deep, interpersonal connections people in this rural, isolated community may be related to the level of social license they permit. The influence of operational legitimacy was analyzed by assigning industry participant responses to three divisions: specialization, sustainability and resource management.

**Table 1 |** Interview Questions - Industry

| *Question/Prompt Number: Question/Prompt* | *Social License Subpart* |
|---|---|
| **Q1:** What makes your job or industry unique?<br><br>**P1**: What level of responsibility, do you feel, is associated with your work?<br><br>**P2:** Are there any parts of your job that you especially enjoy? | Community Identities & Industry Histories |
| **Q2:** Could you tell me about relationships with landowners/clients?<br><br>**P1**: How long do these relationships usually last?<br><br>**P2:** Do they understand what you do? | Relationships & Trust |
| **Q3:** Could you tell me about relationships with the public/community?<br><br>**P1:** What kinds of interactions do you have with them?<br><br>**P2:** Who do you perceive, has more power in these interactions?<br><br>**P3:** Can you help me understand that better? | Relationships & Trust/Engagement through Community Identities |
| **Q4:** Has there been a major external change- cultural, technological, social, economic- that has affected your clients or the public's satisfaction with your products or services?<br><br>**P1:** Are there segments of your company that have had trouble adapting? ie. equipment, personnel, facilities, R+D | Community Identities & Industry Histories/Social License in Community Context |
| **Q5:** Do you feel that you have the ability to communicate effectively with landowners and the public?<br><br>**P1:** What are the factors that limit your communication? | Relationships & Trust/Engagement through Community Identities |
| **Q6:** The forest products industry seems to be very complex. What strategies have you developed to help you survive?<br><br>**P1:** Repeat answer back. Is there anything I missed or you would like to add? | Community Identities & Industry Histories |
| **Q7:** What was your industry like 10 years ago? | Community Identities & Industry Histories |
| **Q8:** When was the best time to be in your industry?<br><br>**P1:** Why do you think that is? | Community Identities & Industry Histories |
| **Q9:** Where do you see your industry in 10 years?<br><br>**P1:** Is that a future you look forward to being a part of?<br><br>**P2:** How will we arrive there? | Community Identities & Industry Histories |
| **Q10:** Is there anyone else that you can suggest that I communicate with about these topics? | Relationships & Trust |

| Table 2 | Interview Questions - Stakeholders | |
| --- | --- |
| ***Question/Prompt Number: Question/Prompt*** | ***Social License Subpart*** |
| **Q1:** Could you tell me your job title and describe what your job entails? | Community Identities & Industry Histories |
| **Q2:** How long have you lived/worked in [County]? <br><br> **P1:** What do you like about forests in this area? | Community Identities & Industry Histories |
| **Q3:** Do you own land? <br><br> **A.** How many acres? <br><br> **B.** Permanent residence? <br><br> **C.** For land that is not a permanent residence, what is your purpose for owning it? (recreation, investment, been in the family) <br><br> **D.** How did you acquire your land (purchase vs inherit) <br><br> **E.** Is the land forested? Does it have a home <br><br> **F.** Is the land have you ever harvested trees either commercially (timber sale) or for personal use (firewood)? <br><br> **G.** Do you have a forest management plan? <br><br> **H.** Do you consult with a professional forester? | Community Identities & Industry Histories |
| **Q4:** When I use the term forest products industry, who do you think of? <br><br> **P1:** Why is that? <br><br> **P2:** How would you define the forest products industry for [County]? <br><br> **P3:** Would you say that you have a high, medium or low understanding of the forest products industry? {Define the forest products industry for our research} | Community Identities & Industry Histories/Relationships & Trust |
| **Q5:** What types of responsibilities, do you feel, are placed on the forest products industry? <br><br> **P1:** How do you expect the actions of businesses in the industry to reflect these responsibilities? <br><br> **P2:** Do you trust local members of the forest products industry to be stewards of our resources? {prompt with economic responsibilities (taxes, commerce) social (jobs, community involvement, recreation), environmental} | Social License in Community Context/Relationships & Trust |
| **Q6:** Could you tell me about the relationships the forest products industry has with the public/community? <br><br> **P1:** What kinds of interactions do you have with the industry? <br><br> **P2:** Who do you perceive, has more influence on the outcomes of these interactions? <br><br> **P3:** Do you feel the industry understands the community's needs? | Relationships & Trust/Engagement through Community Identities |

| | |
|---|---|
| **Q7:** Has there been a major change-environmental, social, economic- that has affected your satisfaction or dissatisfaction with the forest products industry? <br><br> **P1:** How does the forest products industry accommodate or address complaints? | Industry Histories & Community Identities |
| **Q8:** Do you feel that the forest products industry communicates effectively? <br><br> **P1:** How does the industry show that? <br><br> **P2:** What are the factors that limit their communication? | Social Engagement through Community Identities |
| **Q9:** What are the difficulties associated with running a business in [County]? <br><br> **P1:** Do the strategies of the forest products industry help them survive in your opinion? <br><br> **P2:** Repeat answer back. Is there anything I missed or you would like to add? | Industry Histories & Community Identities/Social License in Community Context |
| **Q10:** What was your community like 10 years ago? | Industry Histories & Community Identities |
| **Q11:** When was the best time to be in your community? <br><br> **P1:** Why do you think that is? | Industry Histories & Community Identities |
| **Q12:** Where do you see your community in 10 years? <br><br> **P1:** Is that a future you look forward to being a part of? <br><br> **P2:** How will we arrive there? | Industry Histories & Community Identities |
| **Q13:** Is there anyone else that you can suggest that I communicate with about how the forest products industry relates to the community in [County]? | Relationships & Trust |

These divisions were used to understand how local industry actors respond to external, local pressures regarding their social license. Participants were not asked about these topics directly, however, their responses to other interview questions may be indicative of the broader market dynamics at play in this local industry. Although responses were given a binary coding for the purpose of analysis, they are not intended to represent the overarching measure of social license, which is widely accepted as beyond binary.[12]

## Results

Data analysis via iterative coding processes revealed several themes related to, but not perfectly corresponding to, existing perspectives on social license and our original research objectives. The influence of organizational legitimacy were grouped into the following themes uncovered in interview responses: relationships, ethics, and responsibilities between industry and community. In terms of operational dimensions, dominant themes related to specialization, sustainability, and resource management were noted.

Regarding organizational legitimacy, relationships included the personal and professional interactions of individuals within the industry and with other stakeholders. An example quotation tallied for relationships is as follows: "the time that we spent together- designing, figuring and their business to the shop usually take that relationship deeper." The ethics division denoted responses that could be categorized as being part of a moral code or standard beyond what is required by the profession. Here's an example of a quotation that would be tallied for ethics: "as a Christian [there are] guidelines as to what is right and what's wrong." The final division under organizational legitimacy is responsibilities. Responsibilities were the obligations or duties assigned to a person by themselves or other stakeholders

such as family, neighbors, and corporations. Here's an example of a quotation tallied for responsibilities: "I have to make sure we buy the proper material to give us the greatest yield for the least amount of money."

The influence of operational legitimacy was analyzed by assigning industry participant responses tallies under three divisions: specialization, sustainability, and resource management. Specialization included changes in operational procedure or machinery to better meet market demands and improve efficiency. Here's an example of a quotation that would be tallied for specialization: "equipment to manufacture [a product] has undergone a lot of changes, before it was a very hands on, labor intensive, and dangerous." The sustainability division denoted responses about operations that balanced social, economic and most often environmental goals. Here's an example of a quotation tallied for sustainability: "We do culvert permits whenever a stream needs to be crossed or bridge permits- that is very common now." The final division under operational legitimacy is resource management, which included the inputs and outputs of manufacturing and the methods by which forests were managed in the region, often including comments about granting public access to private forest lands. Here's an example of a quotation tallied for resource management: "Thinning a hardwood stand is very extensive. Clear cutting aspen, not particularly intensive. It regenerates so quickly." Responses tallied in these divisions were not counted mutually exclusively, meaning some comments bridge several divisions that were relevant for assessing social license.

Coding also revealed a major theme, articulated by members of both groups, regarding the relationship between the history of natural resource based industrial activities in the area and perspectives of and expectations for current industry activities. We begin the presentation of the results with a brief history of resource extraction in the county and how participants associated this with shaping current discussions of natural resource based industry. This is followed by data on relationships, trust, and engagement within the county. The last sections build upon the previous sections to review the current social license dynamics as described by interview participants.

## Industry histories and community identities

The long history of logging and copper mining in the county continues to shape the attitudes and identities of industry participants today. The economic cycles of the last decade have left only the most fit forest products industry corporations intact. The community as a whole and the individuals working for the forest products industry in particular value continued commitment to hard work in the face of structural challenges. Several industry participants talked with pride about the importance of hard work, saying things like, "I have always made sure that we are cutting all the time. If you sit you are going backwards," and, "Work harder than the next guy out there, do a better job." The industry here takes a stoic stance toward surviving macroeconomic cycles: "Our long term focus has been helpful. You can make a lot of bad decisions if you are thinking short term. We have been around 100 years. You have got to keep reminding yourself of the long term goals." Several participants represented companies that have generations of experience operating in the region, which may provide continuity on issues that impact social license.

The data suggests that the forest products industry may receive social license through the channels that were originally established by mining corporations. Several community participants mentioned that the local culture is accepting of the presence of industry, saying, "collectively, the culture still reflects that this was a mining region and that the mining companies were the giver," and, "people were used to depending on the company store, not challenging the father mine figure and that carried over so that the people are looking to somebody to give them the job or someone to fix it."

Further, comparisons to mining operations seem to have a positive effect on perceptions of the forest products industry. One community member, comparing the impacts of logging and mining, said, "The legacy mining thing is worse." Rather than anything attributed to industry responsibility, though, participants discussed the differences between mining and logging activities in terms of the biophysical characteristics, the resiliency of local ecosystems and the natural regeneration of many tree species, which allowed the industry to remain intact. According to another community member, the forest resource was "poorly managed for 80 years and it survived or came back."

An industry member similarly focused on the positive aspects of wood products, arguing, "one of the things about our industry is that the trees that we grow are renewable. A lot of industries are extractive type industries. Ours is a renewable industry. So that is a really neat thing. And the other thing is that our industry can go very well hand in hand with other interests that folks have and we have. For instance, recreation, biodiversity, hunting, you name it." The renewable nature of forest resources and the ability to manage the forest for multiple uses were elements that local stakeholders and industry representatives alike described as important for granting social license.

## Relationships and trust

Relationships built through formal channels of communication or industry engagement through activities such as community event sponsorships are perceived as key for social license.[6] However, according to participants in this project, relationships exist both within the industry and informally among members of the industry and the community due to the multi-dimensional nature of human identity and social life which corresponds with understanding of variable stakeholder relationships.[5] It was not primarily through formal networks of communication or industry support but through informal relationships, engagement, and shared activities and interests that the forest products industry was able to achieve and maintain local license via community relationships that built and maintained trust.

One industry member talked at length about the responsibility for the environment that accompanies their position, saying, "Protecting water quality, protecting threatened and endangered species, make sure wildlife habitat is conserved, making sure the neighbors are treated correctly. Those things are common to everybody and those things are what we really got to focus on. Particularly water quality. I think as an industry in general we have come a hell of a long ways in improving what we do around water. Both in road construction and skidding wood and harvesting." In the interviews with the industry, it was widely acknowledged that the wellbeing of their industry was directly linked to the wellbeing of the environment. There were a range of comments made by industry members related to ensuring that the forest would be sustained into the future, including: "Our responsibility is, we are obviously utilizing today, we want to make sure that future generations can utilize as well." Another industry member said, "I am responsible for achieving that budget in terms of the amount of wood we harvest and the amount of money we make off of that. We have to do that in an environmentally sustainable manner that means that we can keep doing it for a long time in the future."

The forest products industry relied on their organizations' or participants' ethics to build trust with the public. The organizations also relied on their relationships within the industry and community as well as their perceived responsibilities to help form trust. The forest products industry responded that operationally, sustainability had the largest impact on whether the public would trust the organization. See Appendix A for expanded data tables relating to this discussion.

Industry members talked about the importance of positive communication efforts while developing relationships with others, saying, "It's all about people skills, you can't go in there be a know-it-all. It's all about listening and talking. Being friendly, being open, being honest, being empathetic." Another industry participant said, "Most people are pretty understanding of what we do. They realize. Once in a while they ask when you do something that seems to be out of the norm, I usually get called on it. There are lots of people around- I know just about everybody in the community. They kind of trust you and if they see something, they want to know why too." These comments are illustrative of how participants from industry discussed developing trust with local stakeholders.

The developer, city official and media participants indicated a high level of trust in the forest products industry. As one of these local stakeholders said, "I think that our forest industry people are stewards of our forest, stewards of our earth of which all of us actually should be, but especially in that industry and I think that they are." While less common among the participants associated with conservation and environmental activism, all community participants made some comments about trust that indicate the existence of a social license. See Appendix A for expanded data tables relating to this discussion.

## Engagement through community identities

Among research participants, relationships that built trust were described as occurring not through formal activities or corporate sponsorships but through shared community identities that created a sense of shared purpose among industry actors and local stakeholders. Of the comments made concerning community engagement, 57% focused on relationships, as the avenue through which members of the forest product industry thought that their organizations engaged stakeholders. Most of the relationships described by industry members were personal or involved other members of the industry. As one participant said, "I know many of the consulting foresters, timber managers. We catch up at community events and sessions." Local industry members are often also local stakeholders and could serve to inform others about the operations of the industry through their informal social networks. Outside of several specific instances, engaging stakeholders was not part of the practice of corporations within the industry operating in this community. Portions of their resource management or specialization (such as design) could have been used to develop conversations with the local community, but were largely absent. The forest products industry seemed to withdraw from many formal

activities that would engage stakeholders because of perceived possibility of negative responses. As one industry member said, "We can be blamed for some of that for not protecting our turf long, long ago. Or for some of our bad behavior as an industry may be long, long ago. We haven't tooted our horn on what's changed, instead we try to stay out of that limelight." See Appendix A for expanded data tables relating to this discussion.

However, community participants suggested that engagement from the industry was largely positive. A majority of the comments about industry engagement suggested industry had been successful in those interactions. See Appendix A for expanded data tables relating to this discussion.

There were very few responses made by local stakeholders specifically about direct or formal engagement with the forest products industry. Only two references were made to direct engagement efforts initiated by the forest products industry, both having been far enough in the past where local stakeholders were unable to recall details. One community member stated, "I do remember TV commercials educating people on the industry and what it means to your economy and your environment, but I can't recall anything particular." Another recalled, "That program where they put the signs out and the kids can go out and learn about different types of forest cover. That was started when there was a real strong backlash against the industry." For both industry and community participants, direct or formal engagement was described as happening rarely and reactively. The kinds of informal engagement that were taking place, and were arguably contributing to the local license granted by the community to industry activities, were based on informal community networks. Participants had gone to school together, been coworkers, or had similar hobbies. These networks were the foundation for shared relationships, the building of trust, and the maintenance of informal engagement.

## Social license in the community context

While the forest products industry may be somewhat embedded in the community, the lack of recognized formal engagement and feeling of invisibility or persecution experienced by some industry participants indicates its social license is inadequate. One industry participant said they felt "demonized" and that as a member of the industry, "You are almost best to stay out of the limelight," although this is contrary to responses from community participants and may be a factor currently limiting effective communication between the groups. This lack of communication between the

groups also shows that the social license may be lacking between this community and the local forest products industry. While respondents may not have directly used the term "social license" or some variation, their responses allude to the greater themes and impacts of social license to operate.

One potential reason for the continued dynamic of perceived conflict is that the industry is not proactively communicating about operational changes that do address the potential environmental harms of logging activities.[6] Of the local stakeholders, all six participants indicated that they had at least a mid-level understanding of the forest products industry. This is despite the lack of coordinated education by the industry and other identified possible partners from university, extension, and government agencies. Further, based upon the responses from community participants, much of the community would be receptive to direct and formal engagement, but said things like, "I think unless you are related, you don't really know loggers" and "I would bet that nine of ten, if people have a complaint they are not going to know where to go."

Multiple participants indicated that they relied on local representatives of state agencies and a local university for information about logging practices and the forest products industry. local stakeholders expected these institutions to maintain relations with individual industry actors and provide information to the community. However, The public's utilization of state government and university expertise was not part of the direct line of questioning in the interviews, but this potentially provides another perspective on community industry relations. Although the Department of Natural Resources (DNR) was seen as an asset to the industry and community, there were responses that indicated that community engagement on behalf of the forest products industry was not the DNR's primary role. local stakeholders recognized the tensions faced by the DNR; as one interviewee said, "Our DNR is underfunded. We are ranked top three in natural resources but we are in the bottom three in state investment." Given the community's social context of having the resources of a local university and local agents from state offices, there is less pressure on the industry to maintain direct communications to facilitate community support. However, this indirect line of communication may strain the limited resources of existing groups (i.e., universities, DNR staff, members of the industry who conduct operations in the public view) in ways that may impede the communication necessary to sustain community support for the forest products industry.

## Discussion & limitations

Past research on how natural resource based industries achieve social license focuses on formal means of engagement and communication as well as schematics of social license formation assumed to apply across an entire industry.[1][11][29] This research instead looks at how local stakeholders and industry actors perceive the processes shaping communication, engagement, and change without explicit reference to social license and demonstrates how social perspectives of industry activities are embedded in real socio-environmental contexts and histories. Via interrogation of the processes involved in real relationships between the forest products industry and the local community and the extent to which the industry is achieving social license, this research demonstrates that social license is highly contingent on socio-historical and spatially variable community identities.

Given the long history of natural resource based industries in this community, natural resource economic dependency is an integral part of community identity and shapes community support for forest product activities. local stakeholders are also aware of the macro-economic forces, largely out of the hands of local industry actors, which shape operational practices. They are critical of how these larger systemic economic systems impact their community while recognizing that local industry actors are largely responsive to forces they cannot control. Forest dependent communities are often interested in balancing forest health with employment and wood production but are also often unable to pay for expanded conservation,[30] and community participants in this study also recognized the limits on local industry actors to make decisions about how the industry utilizes natural resources.

However, histories of natural resource extraction can also be problematic for communities as they face economic dependencies that shape their willingness to accept industry activities. Gunningham, Thornton, and Kagan et al. (2004)[2] found that industry actors felt location and visibility had a very strong connection to social license, even claiming that, "an economically dependent local community would be likely to have a more relaxed social license" (p. 324).[2] In communities with a diverse economy, the processes of achieving social license are often much more complex.[2] Communities may exert low pressure on the industry due to economic dependence; however, the industry arguably requires more than just local consent in order to operate.[4] Considering the relationship between this community and the natural resource industries in the community, local stakeholders and local industry operators

have shared history and experience as having limited power to control the larger economic forces acting upon them. This shared experience shapes the process of acquiring social license, and our data analysis highlights the importance of local histories and relationships in shaping social license. Nonlocal actors are likely to experience a much lesser degree of social license than local actors based on our findings. This can be at least partially explained by considering the importance of shared values, local history, and long standing relationships within the community. Local actors are more likely to have similar values to stakeholders, have established some history in the area, and have had the time to establish meaningful relationships within the community. As such, social license varies spatially and local actors are likely to carry a greater social license to operate than nonlocal actors.

Baines and Edwards (2018)[31] shared similar findings in New Zealand's aquaculture sector regarding the importance of relationships and communication between industry and local stakeholders. They find that social license depends on relationships and building trust. Smaller, local companies tend towards relationships that are relational as opposed to transactional, possibly due to their on-going community presences and communication abilities, which are better for fostering these relationships and trust building. This is consistent with our findings regarding the importance of long-standing relationships, as well as the need for better communication between the local industry and stakeholders cited by interviewees.

A corporate strategy employed to maximize shareholder profit has been to vertically integrate or divest of certain sectors. Vertical integration is when a corporation is invested or owns more than one segment of the supply chain. Vertical integration can help to increase profit margins, secure access to a resource, and add resilience to the expansion and contraction of the industry based on economic cycles. Still, vertical integration can also remove autonomy, flexibility, or opportunities for advancement in local communities. The way that industry arranges and presents its sectors to the local community could influence social license. Thus, issues of scale matter for shaping the process of acquiring social license.

This case study also suggests that informal relationships through shared social networks and shared community identities (as hunters, fishers, or snowmobilers) build trust for the local forest products industry. Trust in industry was not based on knowing the specifics of operational practice; rather, trust was developed and maintained through informal relationships. If formal and informal relationships predicating trust are absent

social license may not develop, leading to the collapse of otherwise viable projects.[21] For environmentally oriented actors, this means seeing industry actors as people who also use the environment. For industry actors, this means acknowledging their interest in an environment that can sustain both economic activities and the recreational activities they want as humans who also live in the community.

However, the research suggests that these informal networks are not serving as a means to communicate about improvements to industry operations that promote environmental sustainability through best management practices (BMPs) and sustainability certification programs. Although adherence to regulations or voluntary participation in sustainability certifications is standard to the forest products industry, it is unclear if the details of the industry performance are being communicated with the public effectively. This represents an opportunity for the industry to improve development of community relationships through communication about operational practices focused on sustainability efforts, especially if ways are found to do this that leverage the informal communication and relational networks that seem to matter most to local stakeholders.

Many of the resources affected by forest management are held in the public trust,[32] so it is important for both industry actors and community stakeholders to feel engaged and involved in decisions regarding local natural resource management. As Krogman (2002)[33] described, the possible range of co-management of community forests and industries is a broad spectrum. Yet Moon's (2011)[34] findings on voluntary environmental behavior by corporations suggest that corporations are less concerned with regulatory disciplinary measures than with maintaining economic stability. The current research project suggests that local stakeholders recognize the pressures facing industry actors. It also indicates interest from both industry and local groups in managing natural resource uses for the long term. The findings suggest ways that natural resource based industries can leverage informal relationships, shared ethics commitments, and shared localized sense of responsibility to shape their organizational tendencies. This also informs the extent to which specialization, sustainability, and resource management impact operational possibilities, and relates themes in both groups that suggest more commonality than division among participant perspectives.

Study limitations include a relatively small sample size and the discrepancy between how many interviews were conducted with industry representatives versus general local stakeholders. Responses from community

stakeholder interviews indicate that community members understand and recognize industry issues and barriers to success, a fact that industry members themselves recognize, however, additional research is required to adequately characterize these similarities. In addition, our use of snowball sampling creates an opportunity to miss certain local populations and their ideas. This includes the lack of Indigenous and Native American voices in the study, which leaves a notable gap in the study. Further interviews aimed at capturing these populations are necessary to form a more complete image of social license in this community.

## Conclusion

Industry in this community has experienced a long history shaped by their natural resource use and the public's opinion of it. At present, the forest products industry in this county renews and maintains its social license through personal relationships and shared values between industry members and local stakeholders, despite the absence of direct community engagement efforts. This gives direct benefit to local actors, who are more likely to hold these shared values and to have developed these personal relationships than an actor external to the community. Industry operations have improved with global innovations in technology, best management practices, sustainability certifications and health and safety regulations, and the industry might strengthen its social license by engaging local stakeholders in conversation about the shared values associated with the management of natural resources. A strengthened social license would benefit the industry if it tries to grow or navigate disturbances.

In this research, the concept of social license helps to explain the ways that operational and organizational dimensions of a natural resource based industry achieve social support from local stakeholders. Further, this research suggests that local stakeholders and industry participants have more commonalities than divisions in terms of key elements shaping social license, including commitments to a shared sense of value ethics and responsible resource management. Finally, this research suggests ways of expanding the concept of social license to consider the impact of local socio-environmental context, informal social relationships, and localized values as well as suggesting that natural resource based industries can leverage direct or mediated dialogue with local communities to communicate changes to operations and organization related to both large scale economic forces and localized environmental management.
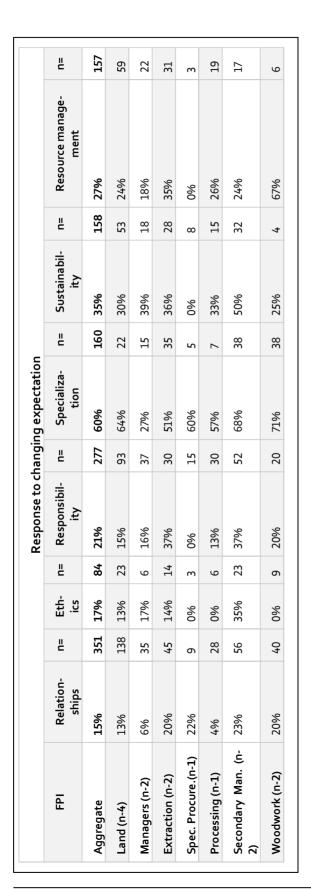
# Appendix A

*Expanded Data Tables*

**Trust in organizations**

| FPI | Relationships | n= | Ethics | n= | Responsibility | n= | Specialization | n= | Sustainability | n= | Resource management | n= |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aggregate | 46% | 351 | 89% | 84 | 46% | 277 | 22% | 160 | 59% | 158 | 43% | 157 |
| Land (n-4) | 39% | 138 | 87% | 23 | 38% | 93 | 23% | 22 | 51% | 53 | 34% | 59 |
| Managers (n-2) | 29% | 35 | 83% | 6 | 41% | 37 | 20% | 15 | 44% | 18 | 41% | 22 |
| Extraction (n-2) | 44% | 45 | 71% | 14 | 43% | 30 | 14% | 35 | 46% | 28 | 45% | 31 |
| Spec. Procure.(n-1) | 44% | 9 | 100% | 3 | 53% | 15 | 20% | 5 | 100% | 8 | 100% | 3 |
| Processing (n-1) | 57% | 28 | 83% | 6 | 40% | 30 | 29% | 7 | 67% | 15 | 47% | 19 |
| Secondary Man. (n-2) | 50% | 56 | 100% | 23 | 63% | 52 | 26% | 38 | 78% | 32 | 65% | 17 |
| Woodwork (n-2) | 73% | 40 | 100% | 9 | 60% | 20 | 24% | 38 | 75% | 4 | 33% | 6 |

**Engaging Stakeholders**

| FPI | Relationships | n= | Ethics | n= | Responsibility | n= | Specialization | n= | Sustainability | n= | Resource management | n= |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aggregate | 57% | 351 | 30% | 84 | 23% | 277 | 24% | 160 | 16% | 158 | 17% | 15 |
| Land (n-4) | 48% | 138 | 22% | 23 | 18% | 93 | 18% | 22 | 11% | 53 | 14% | 59 |
| Managers (n-2) | 49% | 35 | 17% | 6 | 22% | 37 | 7% | 15 | 6% | 18 | 14% | 22 |
| Extraction (n-2) | 62% | 45 | 29% | 14 | 30% | 30 | 26% | 35 | 25% | 28 | 32% | 31 |
| Spec. Procure.(n-1) | 56% | 9 | 0% | 3 | 0% | 15 | 40% | 5 | 0% | 8 | 0% | 3 |
| Processing (n-1) | 82% | 28 | 33% | 6 | 17% | 30 | 29% | 7 | 7% | 15 | 11% | 19 |
| Secondary Man. (n-2) | 54% | 56 | 48% | 23 | 35% | 52 | 16% | 38 | 28% | 32 | 18% | 17 |
| Woodwork (n-2) | 75% | 40 | 22% | 9 | 35% | 20 | 37% | 38 | 25% | 4 | 0% | 6 |

**Response to changing expectation**

| FPI | Relationships | n= | Ethics | n= | Responsibility | n= | Specialization | n= | Sustainability | n= | Resource management | n= |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Aggregate** | **15%** | **351** | **17%** | **84** | **21%** | **277** | **60%** | **160** | **35%** | **158** | **27%** | **157** |
| Land (n-4) | 13% | 138 | 13% | 23 | 15% | 93 | 64% | 22 | 30% | 53 | 24% | 59 |
| Managers (n-2) | 6% | 35 | 17% | 6 | 16% | 37 | 27% | 15 | 39% | 18 | 18% | 22 |
| Extraction (n-2) | 20% | 45 | 14% | 14 | 37% | 30 | 51% | 35 | 36% | 28 | 35% | 31 |
| Spec. Procure.(n-1) | 22% | 9 | 0% | 3 | 0% | 15 | 60% | 5 | 0% | 8 | 0% | 3 |
| Processing (n-1) | 4% | 28 | 0% | 6 | 13% | 30 | 57% | 7 | 33% | 15 | 26% | 19 |
| Secondary Man. (n-2) | 23% | 56 | 35% | 23 | 37% | 52 | 68% | 38 | 50% | 32 | 24% | 17 |
| Woodwork (n-2) | 20% | 40 | 0% | 9 | 20% | 20 | 71% | 38 | 25% | 4 | 67% | 6 |

| FPI | Trust in Organizations | | | Engaging Stakeholders | | | Response to Expectations | | |
|---|---|---|---|---|---|---|---|---|---|
| **Community (agg. n-6)** | **67%** | **n=189** | **33%** | **66%** | **n=180** | **34%** | **66%** | **n=169** | **34%** |
| Developer (n-1) | 88% | n=24 | 13% | 80% | n=25 | 20% | 83% | n=23 | 17% |
| City Official (n-1) | 77% | n=44 | 23% | 78% | n=41 | 22% | 77% | n=43 | 23% |
| Media (n-1) | 98% | n=42 | 2% | 71% | n=42 | 29% | 83% | n=30 | 17% |
| Conservationist (n-2) | 37% | n=67 | 63% | 50% | n=52 | 50% | 37% | n=59 | 63% |
| Environ. Activist (n-1) | 50% | n=12 | 50% | 50% | n=20 | 50% | 86% | n=14 | 14% |

# References

1. Moffat, Kieren; Lacey, Justine; Zhang, Airong; Leipold, Sina (2016). "The social licence to operate: a critical review". *Forestry: An International Journal of Forest Research* **89** (5): 477–488. doi:10.1093/forestry/cpv044. ISSN 1464-3626.
2. Gunningham, Neil; Kagan, Robert A.; Thornton, Dorothy (2004). "Social License and Environmental Protection: Why Businesses Go Beyond Compliance". *Law & Social Inquiry* **29** (2): 307–341. doi:10.1111/j.1747-4469.2004.tb00338.x. ISSN 0897-6546.
3. Anguelovski, Isabelle (2011). "Understanding the Dynamics of Community Engagement of Corporations in Communities: The Iterative Relationship Between Dialogue Processes and Local Protest at the Tintaya Copper Mine in Peru". *Society & Natural Resources* **24** (4): 384–399. doi:10.1080/08941920903339699. ISSN 0894-1920.
4. *Lacey, J.; Parsons, R.; Moffat, K. (2012). Exploring the concept of a Social Licence to Operate in the Australian minerals industry: Results from interviews with industry representatives (Report). CSIRO. EP125553. doi:10.4225/08/5852dc54dc765.*
5. Demuijnck, Geert; Fasterling, Björn (2016). "The Social License to Operate". *Journal of Business Ethics* **136** (4): 675–685. doi:10.1007/s10551-015-2976-7. ISSN 0167-4544.
6. Vanclay, Frank; Hanna, Philippe (2019). "Conceptualizing Company Response to Community Protest: Principles to Achieve a Social License to Operate". *Land* **8** (6): 101. doi:10.3390/land8060101. ISSN 2073-445X.
7. Churach, Dan; Nichols, Di (2007). "Sustainable Communities, Sustainable Environments: Industry Supported Professional Development in the Mineral Resource Sector". In Zandvliet, David B.; Fisher, Darrel L.. *Sustainable Communities, Sustainable Environments: The Contribution of Science and Technology Education*. Brill. pp. 71–84. doi:10.1163/9789087901738_008. ISBN 978-90-8790-173-8.
8. James, Paul Warren; Nadarajah, Yaso; Haive, Karen; Stead, Victoria C. (2012). *Sustainable communities, sustainable development: other paths for Papua New Guinea*. University of Hawaiʻi. doi:10.21313/hawaii/9780824835880.001.0001. ISBN 0-8248-3588-3. OCLC 802343793.
9. Wang, Sen (2019). "Managing forests for the greater good: The role of the social license to operate". *Forest Policy and Economics* **107**: 101920. doi:10.1016/j.forpol.2019.05.006. ISSN 1389-9341.
10. Syn, Juliette (2014). "The Social License: Empowering Communities and a Better Way Forward". *Social Epistemology* **28** (3–4): 318–339. doi:10.1080/02691728.2014.922640. ISSN 0269-1728.
11. *Boutilier, R.; Thomson, I. (2011). Modelling and measuring the social license to operate: Fruits of a dialogue between theory and practice (PDF) (Report). Social License.*
12. Parsons, Richard; Lacey, Justine; Moffat, Kieren (2014). "Maintaining legitimacy of a contested practice: How the minerals industry understands its 'social licence to operate'". *Resources Policy* **41**: 83–90. doi:10.1016/j.resourpol.2014.04.002. ISSN 0301-4207.
13. *Moore, W.H. (October 1996). "The social license to operate". PIMA Magazine. Vol. 78, no. 10. pp. 22–23. ISSN 1046-4352.*
14. Dare, Melanie (Lain); Schirmer, Jacki; Vanclay, Frank (2014). "Community engagement and social licence to operate". *Impact Assessment and Project Appraisal* **32** (3): 188–197. doi:10.1080/14615517.2014.927108. ISSN 1461-5517.
15. Edwards, Peter; Lacey, Justine (2014). "Can't Climb the Trees Anymore: Social Licence to Operate, Bioenergy and Whole Stump Removal in Sweden". *Social Epistemology* **28** (3–4): 239–257. doi:10.1080/02691728.2014.922637. ISSN 0269-1728.
16. Gehman, Joel; Lefsrud, Lianne M.; Fast, Stewart (2017). "Social license to operate: Legitimacy by another name?". *Canadian Public Administration* **60** (2): 293–317. doi:10.1111/capa.12218. ISSN 0008-4840.
17. Lester, Libby (2016). "Media and social licence: on being publicly useful in the Tasmanian forests conflict". *Forestry* **89** (5): 542–551. doi:10.1093/forestry/cpw015. ISSN 0015-752X.
18. Prno, Jason; Scott Slocombe, D. (2012). "Exploring the origins of 'social license to operate' in the mining sector: Perspectives from governance and sustainability theories". *Resources Policy* **37** (3): 346–357. doi:10.1016/j.resourpol.2012.04.002. ISSN 0301-4207.
19. Stern, Marc J.; Baird, Timothy D. (2015). "Trust ecology and the resilience of natural resource management institutions". *Ecology and Society* **20** (2). doi:10.5751/es-07248-200214. ISSN 1708-3087.
20. Morrison, John (2014). *The social license: How to keep your organization legitimate*. Palgrave Macmillan. ISBN 1-137-37072-6. OCLC 964759813.
21. Jijelava, David; Vanclay, Frank (2017). "Legitimacy, credibility and trust as the key components of a social licence to operate: An analysis of BP's projects in Georgia". *Journal of Cleaner Production* **140**: 1077–1086. doi:10.1016/j.jclepro.2016.10.070. ISSN 0959-6526.
22. Elkington, J. (2004). "Enter the triple bottom line". In Henriques, A.; Richardson, J.. *The Triple Bottom Line: Does It All Add up? Assessing the Sustainability of Business and CSR*. Routledge. pp. 1–16. doi:10.4324/9781849773348. ISBN 9781849773348.
23. Sarkar, Amin U. (1998). "Sustainability, sustainable development and forest resources". *International Journal of Sustainable Development & World Ecology* **5** (3): 164–171. doi:10.1080/13504509809469980. ISSN 1350-4509.
24. *"2010 Census Gazetteer Files". United States Census Bureau. 2012. Archived from the original on 2013-11-13. Retrieved October 15, 2016.*
25. Heckathorn, Douglas D. (2011). "Comment: Snowball versus Respondent-Driven Sampling". *Sociological Methodology* **41** (1): 355–366. doi:10.1111/j.1467-9531.2011.01244.x. ISSN 0081-1750.
26. Charmaz, K. (2003). "Grounded theory". In Smith, J. A.. *Qualitative psychology: A practical guide to research methods*. Sage. pp. 81–110. ISBN 0761972307.
27. Ryan, Gery W.; Bernard, H. Russell (2003). "Techniques to Identify Themes". *Field Methods* **15** (1): 85–109. doi:10.1177/1525822x02239569. ISSN 1525-822X.
28. Bryman, A. (2015). *Social research methods* (5th ed.). Oxford University Press. ISBN 9780199689453.
29. Edwards, Peter; Lacey, Justine; Wyatt, Stephen; Williams, Kathryn J. H. (2016). "Social licence to operate and forestry – an introduction". *Forestry* **89** (5): 473–476. doi:10.1093/forestry/cpw036. ISSN 0015-752X.
30. Kangas, Jyrki; Niemeläinen, Pasi (1996). "Opinion of forest owners and the public on forests and their use in Finland". *Scandinavian Journal of Forest Research* **11** (1–4): 269–280. doi:10.1080/02827589609382936. ISSN 0282-7581.
31. Baines, James; Edwards, Peter (2018). "The role of relationships in achieving and maintaining a social licence in the New Zealand aquaculture sector". *Aquaculture* **485**: 140–146. doi:10.1016/j.aquaculture.2017.11.047. ISSN 0044-8486.
32. Fujisawa, Hideo (2004). "The forest planning system in relation to the forest resource and forestry policies". *Journal of Forest Research* **9** (1): 1–5. doi:10.1007/s10310-003-0062-y. ISSN 1341-6979.
33. Krogman, Naomi; Beckley, Tom (2002). "Corporate 'Bail-Outs' and Local 'Buyouts': Pathways to Community Forestry?". *Society & Natural Resources* **15** (2): 109–127. doi:10.1080/089419202753403300. ISSN 0894-1920.
34. Moon, Seong-Gin; Bae, Suho (2011). "State-Level Institutional Pressure, Firms' Organizational Attributes, and Corporate Voluntary Environmental Behavior". *Society & Natural Resources* **24** (11): 1189–1204. doi:10.1080/08941920.2010.546828. ISSN 0894-1920.