HOW TO MEASURE THE SOCIO-POLITICAL RISK IN A PROJECT

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RESUMEN

Si una comunidad retira la licencia social para operar (LSO), un proyecto de la explotación minera puede ser parado totalmente. Para manejar ese riesgo, es necesario determinar qué nivel de licencia social tiene un proyecto y cuanto la LSO está estable o volátil en ese nivel. Esta presentación define el LSO como teniendo cuatro niveles, a saber, (1) el retirarse/retención, (2) aceptación, (3) aprobación, y (4) copropiedad psicológica. Un método para medir la estabilidad de la licencia social se discute. Implica el aplicar de análisis de redes sociales a las redes de los grupos que son afectados por el proyecto o que pueden afectar al proyecto (es decir, grupos de interés). Se propone que comparando la medida del nivel con la medida de la estabilidad, es posible determinar el riesgo sociopolítico total asociado al proyecto de la explotación minera.

ABSTRACT

If a community withdrawals the social licence to operate (SLO), a mining project can be completely stopped. In order to manage that risk, it is necessary to assess what level of social licence a mining project has and how stable or volatile it is at that level. This presentation defines the SLO as having four levels, namely, (1) withdrawing/withholding, (2) acceptance, (3) approval, and (4) psychological co-ownership.. A method for measuring the stability of the social licence is discussed. It involves applying social network analysis to the network of groups who are affected by the project or who can affect the project (i.e., stakeholders). It is proposed that by comparing the measure of the level with the measure of the stability, it is possible to assess the overall socio-political risk associated with the mining project.

INTRODUCTION

This presentation uses Thomson and Boutilier's (forthcoming) conceptualization of the level and stability of the social licence to operate (SLO) as a starting point for measuring the socio-political risk in mining projects. The ability to measure socio-political risk is extremely important to both project owners and potential project financiers or buyers. Owners want a way to diagnose the risk so they can manage and reduce it. Financiers and buyers want an assessment of the overall risk so they can accurately value the project.

Thomson and Boutilier (forthcoming) define the social license to operate as a stakeholder network's ongoing acceptance, approval, or identification with a specific project. "Ongoing" means it is a relationship that must be continually maintained. The most important part of the "stakeholder network" is usually the local community closest to the exploration or mining project. According to stakeholder theory (Freeman, 1984), "stakeholders" are those groups or individuals who either are affected by the project or who can affect the project. The closest Spanish translation for the theoretical concept of a "stakeholder" is "interest group". In mining practice, the stakeholder network usually includes a few geographic proximal communities and various outside groups such as senior government departments and outside NGOs.

Thomson and Boutilier distinguish among four levels of social lísense. The lowest level is withholding or withdrawal of the social licence. If the stakeholder network sees the project as legitimate, they will accept it. This represents a minimal, provisional social licence. If they subsequently see the management of the project as credible, they will become more positive and approve of the project. The stakeholder network becomes more resistant to anti-mining activism at this level. If they then begin to trust the management of the project, they will identify with the project psychologically. At this level of social the network is ready to confront opponents of the project and is proud to be associated with the project.

Viewing the social licence as an ongoing relationship implies that the level of social license can fluctuate. Thomson and Boutilier cite the San Cristobal exploration project and subsequent mine in Bolivia as an example of a social licence that went from acceptance to psychological co-ownership to withdrawal and back to high acceptance during a 15 year period.

According to Thomson and Boutilier, the stability of the social license is just as important as its level. The stability depends on the structure of the stakeholder network. The structure of a stakeholder network can be measured and graphed by interviewing the leaders of the groups in the network about their relationships with other groups. If there are shared goals and trust in the relationship, there is a line on the graph connecting the two groups. Figure 1 shows an array of network structures along two dimensions. The vertical dimension shows three levels of "network closure", that is to say, three levels of inter-connectedness among the groups in the network. The horizontal dimension shows the extent to which the network exhibits a core-periphery pattern. The column on the left shows templates without cores. The column on the right shows templates with strong cores.

According to much research in the sociology of social networks (e.g., Gittell and Vidal, 1998, Onyx and Bullen, 2000), more bonding is associated with higher mutual accountability, norm enforcement within the group, and exclusion of outsiders. Research and theory (e.g. Wallerstein, 1979) describes networks with stronger cores as more capable of acting quickly and decisively, but also more prone to having a core of elites with a social marginalized periphery.

The templates towards the top right of Figure 1 represent networks with more socio-political stability because they combine an order-maintaining core with openness to influences from the periphery. The top right template, labeled "accountable leadership", has characteristics that make it norm-abiding, effective, accountable, and inclusive. The periphery and semi-periphery have enough combined numbers and bonding to prevent self-serving behavior by the core. At the same time, the core is central enough to act as an integrator, mediator, and enforcer of norms and standards.

Going beyond Thomson and Boutilier, we can outline the what steps would have to be taken in order to quantify the variables in this conceptual framework. Measuring the level of social license is a relatively straightforward attitude survey task. It uses well-accepted methodology. Measuring the stability of the social licence requires more creativity and is more complex. However, because of that, it diagnoses common hidden barriers to obtaining a durable social license.

The measurement of the level of social license

The measurement of the level of social licence depends on finding suitable questions that assess the community perceptions corresponding to each of the stages and transitional criteria between them. Mathematically, a project's score would be the mean of the rating scale responses for all the stakeholder group leaders interviewed.

The measurement of the stability of the social license

The data needed to measure the level and stability of the social license is obtained by (a) conducting interviews with stakeholder group leaders to obtain ratings of their groups' relations with other groups, (b) converting the ratings to a matrix of intergroup ties of various strengths, and (c) graphing the structure of the project's stakeholder network.

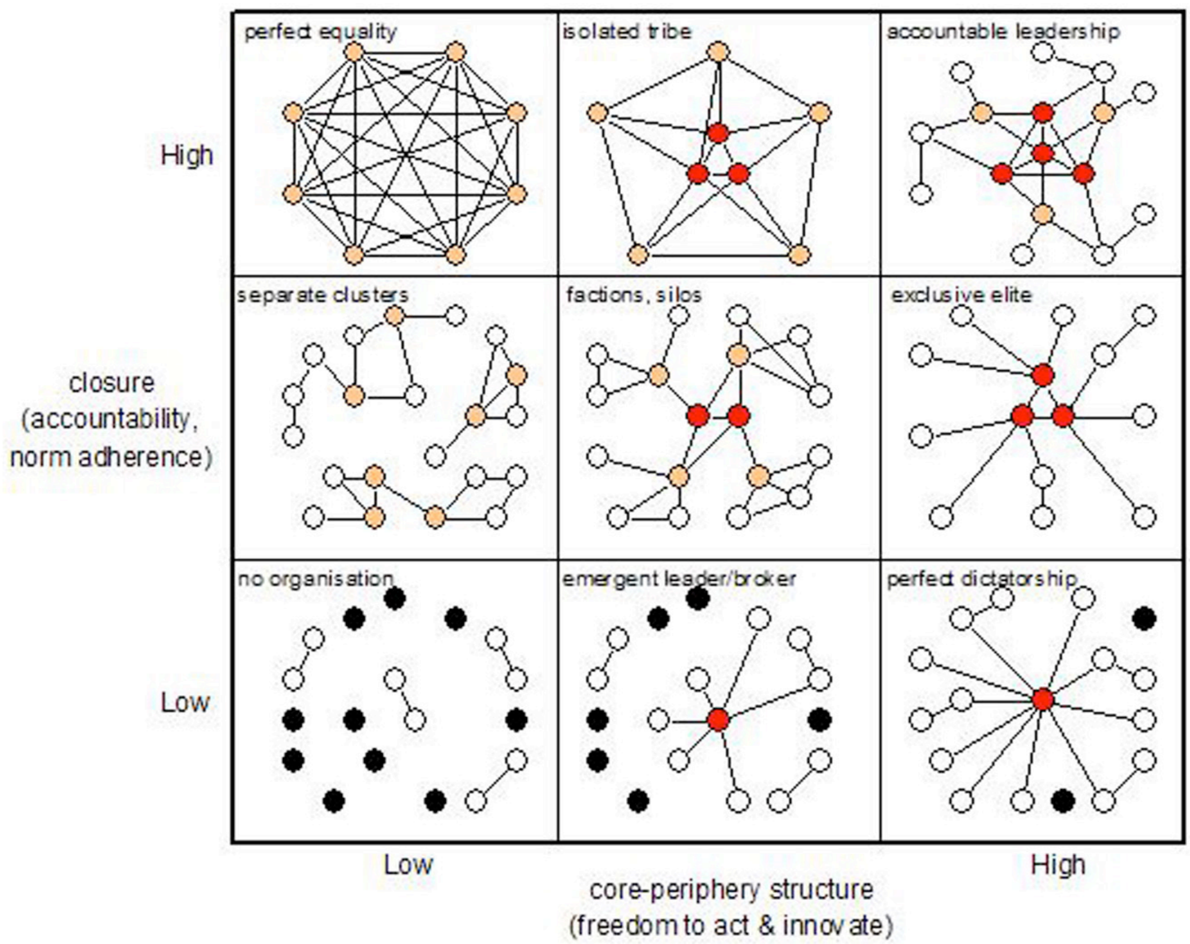

Figure 1. Templates for stakeholder network structures based on their level of closure and the presence of a core-periphery pattern

The concept of the stability of a social license consists of a set of network structure criteria that must be met. The criteria are not necessarily linear or independent. It is essentially a profile of the characteristics of the stakeholder network. The some of the criteria must be present. However, some criteria are contingent on each other such that higher scores on one trigger the conditions for the application of another.

The criteria for stability include:

Closure: low ratios of isolates and components to actors, such that network density is at a moderately high level,

A core-periphery structure: one tightly inter-connected group of actors surrounded by other actors less connected to one another,

A smooth gradient from the core to the periphery: where a core-periphery structure is present, the existence of a smooth gradient from the core to the periphery, that is, successively concentric cores extending to the semi-periphery, and

where a core periphery structure is present, structural holes in the periphery that lower the closure but do not penetrate into the core.

In summary, the most stable stakeholder network includes most actors in a main network (i.e.,"component") that has a dense core surrounded by concentric rings of successively less densely connected semiperipheral actors until the periphery is reached, where empty spaces between groups of actors (i.e., "structural holes") begin to appear creating wings or tentacles. In other words, we propose that the graph of a stable stakeholder network looks like a tall, fat starfish.

When some of the criteria are met, but others are not, different kinds of destabilizing dynamics are common. Knowing about the presence of these dynamics is useful for developing strategies. Therefore, the suggested approach to measuring the stability of the social licence uses these common unstable configurations as templates against which the observed network can be matched. Each template is assigned a stability score. When an observed network matches a template, it gets the stability score of that template. Observed networks that fall between templates of different scores get an interpolated score.

Additional technical notes on measuring the four criteria

For criterion 1, what is most important is that the percentage actors that are isolates is low. Network density gives a gross index of this because it is the number of ties that are observed expressed as a percentage of all the ties that could theoretically exist among ***n*** network members.

Density = t_o/t_p

where t_o is number of observed ties,

t_p = n! and

n is the number of network members.

However, the ideal profile for the measures would be non-linear. From a base of no density, more stability means more ties up to a certain point, yet to be empirically determined. Beyond that point, more ties prevent the appearance of criterion 4 and therefore more stability would require a flat or falling level of closure.

For criterion 2, Holme (2005) developed an index of core-periphery structure. Starting with the case of single member core, the core-periphery structure would be given by the closeness measure. Closeness is a member's reciprocal average shortest distance to other actors, where distance is how many ties must be traversed. For example, the bottom right template in Figure 1 (i.e., perfect dictatorship) has such a single member core. Compared with the other members of that network, the core (shown in red) needs only one tie to reach most of the other members. The other's however, usually need two because they have to go through the core first.

Holme generalizes the equation to a multi-member core, like the template in the middle of the right column in Figure 1 (i.e., exclusive elite). To identify the members of the core group, he uses the *k*-cores measure of clusters within networks. Wasserman and Faust (1994: 226) define a k-core as a subgraph in which "each node is adjacent to at least a minimum number, k, of the other nodes in the subgraph." Then, Holme reapplies the closeness calculation to the whole *k*-core. In order to insure that the core meets the additional criterion of being central in the network, he calculates an average closeness for a random network of the same degree sequence (i.e., frequency distribution of ties with actors ordered sequentially by numbers of ties) as the observed network and subtracts it from the core's closeness index. The resulting difference is his core-periphery index.

Looking in more detail at the technical aspects of measuring criterion 3, there should be a smooth gradient from the core to the periphery such that the paths connecting the core members with the peripheral members would have a smoothly decreasing average number of ties for every successive actor. A star pattern, like the perfect dictatorship in the lower right of Figure 1 would have an abrupt gradient because the core has a much higher degree (i.e., number of ties) than its immediately adjacent neighbors. Another possible way to index the same idea would be to look for a series of nested *k*-cores from the core to the periphery. As *k* is increased to include more actors around the most densely connected core, each successive *k*-core embeds the previous. Moreover, the relaxation of the criteria should produce many small increments in how many actors get included, as opposed to one or two giant increments.

In terms of template matching, we used a knowledge of broad fields of sociology and social psychology to assign stability classification to the templates in Figure 1. These are shown in Table 1. We propose a grading system for the templates that emphasizes short-term instability over the coming one to three years. This choice was made in order to match the planning horizons of mining project managers. Suggested ratings are shown on the last line each cell in Table 1. Although these classifications were based on both sociological theory and consulting experience, they need to be refined with further empirical research. At this point they serve as a sufficiently precise estimates to permit the conceptual outline of a general measurement model for socio-political risk and therefore also for the stability of a social lísense.

The stability ratings go from the lowest in the bottom left to highest in the top right on Table 1. The bottom left situation is quite unlikely to persist. It is often only found after natural disasters, wars, or dictatorships. It represents a power vacuum and, as such, is an unstable configuration. When a company enters an area with the prospect of big financial benefits, and big changes to the environment and the way of life groups quickly get organized.

The top right template is judged most stable. It is a stylization of what has been observed in networks of stakeholders in infrastructure controversies in cities of the developed world (Boutilier, 2008). It has a less steeply sloped core-periphery structure than the lower templates in the right column. This is to reflect the observation that stark class systems are more liable to be overthrown or undermined and therefore less stable than social stratification patterns with a smooth gradient from the core to the periphery.

Such social systems are also more likely to provoke opposition to the project from human rights groups outside the jurisdiction. That opposition is another factor reducing the stability of the social licence.

Table 1: Stability ratings for the templates in Figure 1.

Template label: "perfect equality" Stability rating: medium	Template label: "isolated tribe" Stability rating: medium high	Template label: "accountable leadership" Stability rating: high
Template label: "separate clusters" Stability rating: medium low	Template label: "factions, silos " Stability rating: medium	Template label: "exclusive elite" Stability rating: medium high
Template label: "no organization" Stability rating: low	Template label: "emergent leader/broker" Stability rating: medium low	Template label: "perfect dictatorship" Stability rating: medium

In terms of interpolating final stability ratings, criterion measures on observed networks can compared with the measures for these templates in a multidimensional scaling analysis. The observed network can be given a stability rating based on the average for the templates weighted by their closeness to the observed in the multidimensional scaling result. If an observed network's profile closely matches a template, that template will have high unique weight in determining the observed network's stability score.

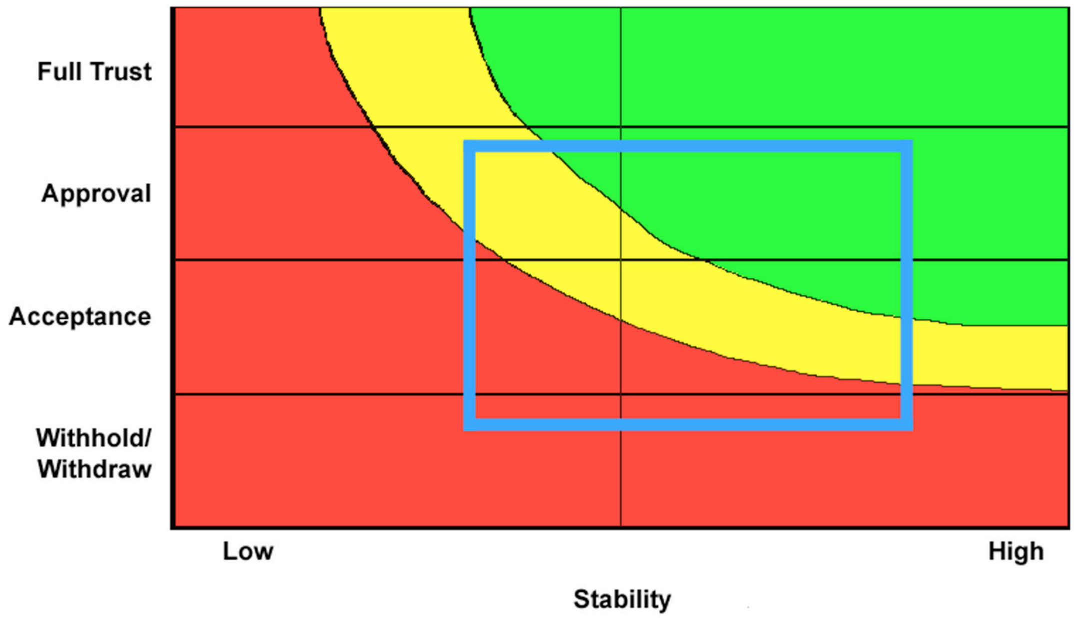

Figure 2: Classification of risk level as low (green), medium(yellow), or high (red) by intersecting SLO level (x-axis) with SLO stability (y-axis)

Once the level and stability of the social licence has been quantified, the risk can be assigned a classification using the graph in Figure 2. The x and y coordinates (i.e., level and stability) locate the project in one of three risk zones corresponding to low, medium, and high. The blue rectangle in Figure 2 represents the region into which the majority of mining project would fall.

The general approach is calculable but could produce different results depending on the weight placed on each of the conceptual variables. Therefore, the computations would have to be calibrated in studies that compared various weightings with the level of risk known *a priori* in specific projects. This validation process would involve identifying projects with levels of socio-political risk that were evident and obvious from information other than the variables used in this assessment framework. The cases with *a priori* known risk levels could be used to adjust the weightings so that known low risk cases yielded low risk classifications and known high risk cases yielded high risk classifications. The next step would be to validate the predictive value of the weighted framework with a fresh set of cases of known risk. If new known cases of low risk were to yield low risk classifications and known high risk cases were to yield high classifications, the framework would be validated. At that point it would be possible turn attention to the possibility of deriving stability ratings directly from criteria scores, instead of traversing through the templates.

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