Stakeholder mapping for scaling up purun woven agroindustry as an alternative to strengthening livelihoods on peatlands

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Abstract. This paper explores roles and interests of stakeholders in scaling up purun woven agroindustry as an alternative livelihood for people on peatlands. If the agroindustry serve well, purun plants on peatlands would be preserved and tension to burn peatland for other economic purposes is reduced. This research was conducted through a survey in Menang Raya Village, Pedamaran District, Ogan Komering Ilir Regency, South Sumatera, Indonesia. Samples were purposively taken involving purun artisans and ten institutions related to the agroindustry. Analysis employed Importance Performance Analysis. Stakeholders were facilitators, regulators, implementers, evaluators, and advocates. Several interests were identified, namely economic, social, political, and environmental interests. Key stakeholders were Provincial Forestry Service, National dan Regional Peatland Restoration Agency, and local NGOs. Stakeholders were empowered by District Cooperatives and MSMEs Office, Provincial and Regional Planning Development Agency, Universities, and International NGOs. Follower stakeholders involved local communities. The form of partnership between stakeholders and the purun woven industry was mutualistic. The results suggested that doable strengthening strategies for scaling up purun woven agroindustry were (1) regulatory formulation, (2) strengthening the role of stakeholders, and (3) institutional structuring.

1. Introduction
Efforts in exploiting peatlands often disregard sustainability, which in turn, causes various problems in peatlands. Anderson and Bowen \cite{1} and Colfer \cite{2} found that there were additional problems related to peatlands management, namely land use, law enforcement, community capacity, economic rents, exploitation of forest products (timber and non-timber) and climate change. Regarding the strategy to overcome the loss of livelihoods and the decline in income on peatlands, Adriani \textit{et al.} \cite{3} and Karnisa \textit{et al.} \cite{4} suggested agroforestry and local craftsmanship. Purun woven agroindustry is one of the opportunities to support local livelihood. While literature related to farmers livelihoods and income generation on peatlands grows, studies thoroughly analyzing purun woven agroindustry have been limited.

Purun woven agroindustry is an alternative business that has long been developing in peatlands communities. A similar history is observed in Ogan Komering Ilir Regency, South Sumatra Province, Indonesia, where some people, especially women, maintain working as purun artisan (Figure 1).
Even though the businesses survive in decades, purun industry is not economically viable. Farmer’s income remains low, and market reach is considerably limited. The reasons for this include low economic values, limited market, and uncertain economic/institutional responses to communities [5, 6].

Various policies specifically formulated for purun should account local needs and location-specific. Therefore, efforts to increase competitiveness of purun commodities on peatlands need to be preceded by understanding various economic, social, and institutional feature of this business existed in the community [5, 7, 8]. Information about these properties is important not only for developing opportunities on purun woven agroindustry, but also for increasing household income.

Purun-associated institutions are also strongly influenced by stakeholders. As noted by previous publications [9-12], stakeholders were determinants of the success of a business. Stakeholders must participate in development so that this woven craft is sustainable. Based on these events, this study explored roles and interests of stakeholders in purun woven agroindustry as an alternative livelihood for people on peatlands.

2. Methodology
This research was carried out in the village of Menang Raya, Pedamaran District, Ogan Komering Ilir Regency. The location was purposively chosen by considering that the village is one of purun agroindustry centers. The research used a survey, with a simple random sampling of 30 female artisans.

We also employed purposive sampling technique with Expert Judgment. Ten people who are active in the development of purun woven agroindustry were interviewed. Stakeholder analysis was carried out using Importance Performance Analysis (IPA). It determines the level of linkage between interest and importance of the stakeholders about attributes being studied by comparing the importance score with the role score. By using the Cartesian diagram (Figure 2), the interest and importance of stakeholders are mapped.
3. Results and discussion

3.1. Identification of stakeholders’ role
Ten participating institutions in the purun woven agroindustry are given in Table 1. The results showed that on average each stakeholder could have more than one performance and importance. This finding suggested an early indication of weak coordination between stakeholders. Table 1 depicts that there were stakeholders acted as regulators, facilitators, and implementers. In management theory, dual performances need to be avoided, because implementation of one performance often diminish the other; this also applies to the importance.

| No | Function | Stakeholder | Performance | Importance |
|----|----------|-------------|-------------|------------|
| 1. | Key Stakeholder | a. Provincial Forestry Service | Facilitator, Regulator, Implementer | Environment |
|    |          | b. The National Peatland Restoration and Mangrove Agency | Facilitator, Regulator, Implementer, Evaluator | Environment economy, and social |
|    |          | c. The Regional Peatland Restoration and Mangrove Agency | Facilitator, Regulator, Implementer, Evaluator | Environment economy, and social |
|    |          | d. Local NGO (Purun Institut) | Facilitator, Implementer, Advocate | Environment and social |
| 2. | Supporting stakeholders | a. The District Cooperatives and MSMEs Office | Facilitator | Economy and Social |
|    |          | b. The Provincial and Regional Planning Development Agency | Regulator, Implementer | Environment economy, and social |
|    |          | c. The Provincial and Regional Planning Development Agency | Regulator | Environment economy, and social |
|    |          | d. National and International NGO | Facilitator and Implementer | Environment economy, and social |
|    |          | e. Universities | Facilitator and Implementer | Environment and social |
| 3. | Follower Stakeholder | Local communities | Benefit recipients | Environment economy, and social |
3.2. Identification of stakeholder’s performance and interest
The levels of performance and importance of stakeholders are presented in Table 2 and Figure 2.

Table 2. Interest and role levels of observed stakeholders

| No. | Stakeholder                                           | Importance Score | Importance (%) | Performance Score | Performance (%) |
|-----|------------------------------------------------------|------------------|----------------|-------------------|-----------------|
| 1.  | Provincial Forestry Service                         | 194.50           | 64.83          | 146.00            | 48.67           |
| 2.  | The District Cooperatives and MSMEs Office          | 113.00           | 37.67          | 106.00            | 35.33           |
| 3.  | The Provincial and Regional Planning Development Agency | 109.00           | 36.33          | 105.50            | 35.17           |
| 4.  | The Provincial and Regional Planning Development Agency | 120.75           | 40.25          | 107.75            | 35.92           |
| 5.  | The National Peatland Restoration and Mangrove Agency | 226.25           | 75.42          | 210.00            | 70.00           |
| 6.  | The Regional Peatland Restoration and Mangrove Agency | 211.49           | 70.50          | 172.50            | 57.50           |
| 7.  | Local NGO (Purun Institut)                          | 204.75           | 68.25          | 165.00            | 55.00           |
| 8.  | Local communities                                   | 140.50           | 46.83          | 147.00            | 49.00           |
| 9.  | Universities                                        | 96.50            | 32.17          | 97.50             | 32.50           |
| 10. | National and International NGO                      | 106.25           | 35.42          | 97.75             | 32.58           |
|     | **Total Score**                                     | **1,522.99**     | **507.66**     | **1,355.00**      | **451.67**      |
|     | **Average Score**                                   | **50.77**        |                | **45.17**         |                 |

Level of performance and importance of stakeholders as presented in Figure 3 can be explained as follows. Quadrant I has high levels of importance and performance in the development of the agroindustry with notable institutions, namely the Provincial Forestry Service, the National and Regional Peatland Restoration and Mangrove Agency, and also the Local NGO. Quadrant II signifies high level of importance but has low performance in the development of purun; no institutions included in this quadrant. Quadrant III depicts low levels of importance and performance in agroindustry development; this was associated with the District Cooperatives and MSMEs Office, the Provincial and Regional Planning Development Agency, Universities, and International NGOs. The last, Quadrant IV indicates a low level of importance but has high level of performance that was occupied by local communities.

Based on IPA analysis, key stakeholders included the Provincial Forestry Service, the National and Regional Peatland Restoration and Mangrove Agency, and Local NGO. Supporting stakeholders were the District Cooperatives and MSMEs Office, the Provincial and Regional Planning Development Agency, Universities, and International NGOs. Follower stakeholder was local communities.
Figure 3. Cartesian Diagram of Stakeholders Performance and Importance.

Note:
1: Provincial Forestry Service
2: The District Cooperatives and MSMEs Office
3: The Provincial and Regional Planning Development Agency
4: The Provincial and Regional Planning Development Agency
5: The National Peatland Restoration and Mangrove Agency
6: The Regional Peatland Restoration and Mangrove Agency
7: Local NGO (Purun Institute)
8: Local communities
9: Universities
10: National and International NGO

3.3. The form of partnership
Partnership among stakeholders in this woven agroindustry is voluntary and based on partnership grouping, hence it is a mutualistic partnership [13, 14]. Partnerships amidst two or more parties perceiving the importance of partnerships provide mutual benefits and aim for optimal goals. Through partnering, with two or more agents/organizations at the same or different status, cross-benefits between collaborating parties can be obtained; therefore, making it easier for each institution to better understand its vision and mission, and at the same time supporting the others.

3.4. Stakeholder strengthening strategies
Based on the results, strategies for strengthening stakeholders are:
(1) Regulatory formulation. The regulatory formulation is related to agroindustry development plan starting from preparation of production, production processes, products, and markets, and its optimization. It is necessary to clearly define stakeholders that can act as regulators, implementers,
facilitators, and advocates. Multiple roles of stakeholders in scaling up purun agroindustry can be avoided by building a mutualistic partnership.  

(2) **Strengthening the role of stakeholders.** This could be established through reducing agreement between stakeholders so that each stakeholder can develop individual performance and importance. Formal agreements between stakeholders avoid multiple roles, leading to strengthening performance and importance of stakeholders.  

(3) **Institutional structuring.** This strategy follows an agreement on performance and importance of stakeholders. Development activities will continue through providing facilities with innovations. To that end, the partnership needs to be accompanied by a formal agreement to allow continuation in agroindustry development. Village government needs to arrange agreed cooperation by parties to optimize benefits.

4. **Conclusion**
Ten stakeholders were participating in purun agroindustry. In terms of performance, stakeholders acted as facilitators, regulators, implementers, evaluators, and advocates. In terms of interests, several interests were identified, namely economic, social, political, and environmental interests. Key stakeholders were the Provincial Forestry Service, the National dan Regional Peatland Restoration Agency, and local NGO. Supporting stakeholders included District Cooperatives and MSMEs Office, the Provincial and Regional Planning Development Agency, Universities, and International NGO. Follower stakeholders were local communities. The form of partnership among stakeholders was mutualistic. This research suggested that strengthening strategies could exploit (1) regulatory formulation, (2) strengthening the role of stakeholders, and (3) institutional structuring.

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