

REVIEWER'S REPORT

Manuscript No.: IJAR- 58817

Title: **Cartographie des acteurs et analyse socioéconomique de la chaîne de valeur artisanale du bois dans la région de Faranah, République de Guinée.**

Recommendation:

Accept as it is

Accept after Major revision.....

Accept after minor revision

Do not accept (*Reasons below*)

Rating	Excel.	Good	Fair	Poor
Originality		✓		
Techn. Quality		✓		
Clarity			✓	
Significance			✓	

Reviewer Name: **ANAPANA GOPAL**

Reviewer's Comment for Publication.

General Comments

The manuscript addresses an important topic: the structure of the artisanal wood value chain and the socioeconomic characteristics of its actors in the Faranah region of Guinea. The study combines qualitative and quantitative approaches, including documentary analysis, participant observation, semi-structured interviews, focus groups and a formal questionnaire survey conducted between January and May 2025. The manuscript has potential because it provides information on the actors involved, access to trees, wood yields, prices, benefits, spatial distribution and socioeconomic characteristics. The results indicate strong concentration of actors in Faranah, substantial reliance on *redevance* for tree access, low educational attainment among respondents, and considerable variation in economic returns.

However, **the manuscript requires Minor revision before it can be considered for publication.** The most important problems concern methodological transparency, inconsistencies among reported results, unclear definitions of variables such as “rendement,” “marge” and “redevance,” insufficient statistical analysis, and several unsupported interpretations.

Minor Comments

1. The study sample size is not clearly reported

The manuscript states that voluntary participation and quota sampling were used, with categories defined according to age, sex, socioeconomic status and educational level.

However, the manuscript does **not clearly state the total number of respondents** in the Methods section.

This is a fundamental methodological omission.

The authors should explicitly report:

- total sample size (**n**);
- number of respondents in each prefecture;

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- number of respondents in each actor category;
- number of men and women;
- number of respondents participating in each segment of the value chain;
- criteria used to determine the quota for each group.

The percentages presented later—for example, 84.18% men and 15.82% women—should always be accompanied by the corresponding **n**.

2. The sampling strategy is internally problematic

The manuscript simultaneously describes **voluntary participation** and **quota sampling**.

These approaches have different implications for representativeness.

The statement that the sample is “representative” is not sufficiently justified when voluntary participation is involved. Voluntary response can introduce substantial selection bias.

The authors should explain:

- how the target population was defined;
- how respondents were initially identified;
- how quotas were calculated;
- whether all selected respondents actually participated;
- how non-response was handled.

The wording “**échantillon représentatif**” should be avoided unless representativeness can be statistically justified.

3. There is a Minor inconsistency in the reported wood yield

This is one of the most important problems in the manuscript.

The Abstract states that:

the yield is strongly concentrated around **3–4 planks per tree**.

Figure 5 similarly states that most trees produce **3–4 madriers**.

However, **Figure 9** presents “rendement” values reaching approximately **26 planks per tree**, with values of 23–25 reported for Dinguiraye and lower values for Faranah and Dabola.

The Discussion also states that the majority of trees produce 3–4 madriers.

This creates a serious ambiguity.

The authors must determine whether:

- Figure 5 measures **number of madriers per tree**, while Figure 9 measures something else;
- “planches” and “madriers” refer to different products;
- Figure 9 contains a data-entry or labeling error;
- the units or denominator differ.

This discrepancy must be resolved before publication.

4. The terminology “madrier,” “planche” and “arbre” must be standardized

The manuscript uses several terms that appear to describe wood output:

- arbre;
- madrier;
- planche;
- rendement;
- rendement moyen.

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These terms cannot be treated as interchangeable.

The authors should define precisely:

Yield = what quantity of what product obtained from one tree?

For example:

- number of boards per tree;
- volume of sawn wood per tree (m³);
- number of planks per log;
- percentage recovery from log volume.

For a scientific value-chain study, **volume-based recovery rate (m³ output/m³ input)** would generally be much more informative than simply counting boards because board dimensions can differ substantially.

5. The fiscal/redevance results are contradictory

The Abstract reports that payment of a *redevance* accounts for **84%**, followed by free access at 15% and direct purchase at less than 1%.

However, the same Abstract subsequently states:

“La taxe apparaît comme le mode d'accès dominant (près de 99 %).”

The Discussion likewise reports that taxation accounts for **99% of cases**.

These figures appear contradictory unless **“redevance” and “taxe” represent two different variables**.

The authors must clarify:

- What is *redevance*?
- What is *taxe*?
- Are they legally/institutionally different?
- How was each variable measured?
- Why does one result equal 84% while another equals approximately 99%?

If they are actually the same variable, one of the values is incorrect.

6. The economic analysis is not sufficiently developed

The manuscript claims to provide a **socioeconomic analysis of the wood value chain**, but the economic calculations are relatively limited.

The manuscript reports that trees acquired for approximately **500,000 GNF** and resold for **2,500,000–2,600,000 GNF** constitute the most profitable segment.

However, the manuscript needs to distinguish:

Revenue ≠ gross margin ≠ net profit.

The analysis should account for relevant costs, such as:

- tree acquisition;
- official taxes/redevances;
- unofficial payments, if documented;
- chainsaw/mobile-saw operation;
- fuel;
- labour;
- transport;
- storage;
- maintenance;
- processing losses;
- market/transaction costs.

Only then can the authors legitimately identify the “most profitable” actor or segment.

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7. Figure 2 should not be described simply as “revenues”

Figure 2 shows revenues generated by different wood species, with Acajou and Vène having the highest values. The manuscript interprets this as evidence that these species have greater commercial value.

However, the graph appears to represent **total monetary amounts**, not necessarily profitability per unit of wood.

A species can generate greater total revenue simply because a larger quantity was harvested.

The authors should distinguish:

- total revenue;
- price per tree;
- price per m³;
- profit per tree;
- profit per m³.

The interpretation should be revised accordingly.

8. The conclusion that Acajou and Vène are more profitable requires stronger evidence

The manuscript states that Acajou and Vène generate the highest revenues despite sometimes lower volumes, and interprets this as evidence of greater commercial value. This is plausible, but the analysis should show the underlying data.

A useful table would include:

Species	Number of trees	Volume harvested	Mean purchase price	Mean selling price	Total revenue	Mean profit
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This would make the economic interpretation much stronger.

9. Figure 3 demonstrates spatial concentration, but the causal explanation is speculative

The manuscript reports that Faranah has the largest number of actors, followed by Dinguiraye and Kissidougou, while Dabola has the fewest.

The authors then suggest that this may be related to:

- market accessibility;
- forest-resource availability;
- transport infrastructure.

These are reasonable hypotheses, but they were apparently **not directly tested** in the study.

Therefore, the authors should use cautious wording such as:

“This pattern may be associated with differences in market accessibility, resource availability and transport infrastructure.”

Alternatively, the authors could conduct statistical analysis to test these relationships.

10. The manuscript lacks inferential statistical analysis

The manuscript states that data were processed using Excel, IBM SPSS and SigmaPlot.

However, most results are presented as:

- percentages;

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- frequencies;
- graphs;
- descriptive comparisons.

There is little evidence of:

- confidence intervals;
- hypothesis testing;
- ANOVA/Kruskal–Wallis tests;
- chi-square tests;
- correlation analysis;
- regression;
- effect sizes.

Given that the manuscript claims to analyse socioeconomic differences among actors and prefectures, appropriate inferential tests would considerably strengthen the study.

For example:

- **Chi-square test:** actor category × locality;
- **Chi-square test:** sex × actor category;
- **Kruskal–Wallis/ANOVA:** profit among localities or actor categories;
- **Kruskal–Wallis/ANOVA:** yield among localities;
- **Correlation/regression:** experience, education, access mechanism and profit.

The choice of tests should depend on the actual data distribution and measurement scale.

Results and Interpretation

11. The interpretation of low education requires caution

The Discussion states that approximately **60% of respondents are illiterate**, with only two actors having university education.

This is an important finding.

However, the manuscript concludes that low education **limits sustainable forest-management knowledge and access to market information**.

This may be true, but the study does not appear to directly measure:

- knowledge of sustainable forest management;
- knowledge of regulations;
- access to market information;
- literacy-related decision-making.

Therefore, the conclusion should be presented as an interpretation rather than an established causal relationship.

12. Gender analysis is useful but underdeveloped

The study reports **84.18% men and 15.82% women** among respondents.

The manuscript suggests that this may reflect the physical requirements of cutting, transport and processing and women's limited access to forest resources.

This section could be strengthened by reporting **which specific activities women participate in**.

For example:

- production;
- processing;
- transportation;

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- trading;
- retail;
- consumption.

A cross-tabulation of **sex × actor category** would be particularly valuable.

13. The marital-status analysis is descriptive but its interpretation is too strong

The manuscript reports that 90.08% of respondents are married, 6.70% single and 2.95% divorced.

The manuscript then suggests that the high proportion of married respondents demonstrates the importance of the wood activity for household income.

This conclusion is not directly supported by marital-status data alone.

To establish that relationship, the authors would need information on:

- household income;
- proportion of household income derived from wood;
- number of dependents;
- duration of involvement;
- livelihood dependence.

The discussion should therefore be moderated.

14. Figure 6 requires clearer economic classification

The benefits-per-tree figure contains many income categories, ranging from relatively low values to several million GNF, with the largest displayed categories around **25.76% and 19.70%**.

However, the figure is difficult to interpret because:

- there are many categories;
- the legend is crowded;
- colours are difficult to distinguish;
- exact class boundaries are not explained;
- the number of observations is not given.

A **histogram or box plot** would be much more scientifically informative.

Methodological and Structural Comments

15. The questionnaire design should be described

The manuscript states that a questionnaire was administered using **KoboCollect**, and that data cleaning was undertaken to identify errors and inconsistencies.

However, there is no information about:

- questionnaire development;
- pre-testing;
- validation;
- number of questions;
- open versus closed questions;
- translation into local languages;
- interviewer training;
- informed consent.

These details should be included.

16. Ethical considerations are missing

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Because the study involved interviews and questionnaires with human participants, the manuscript should state whether:

- informed consent was obtained;
- participation was voluntary;
- confidentiality was maintained;
- ethical approval or institutional authorization was obtained, where applicable.

This is especially important because questions apparently concerned potentially sensitive issues such as **illegal logging, taxes, profits and police harassment**.

17. The study period should be stated consistently

The Methods state that fieldwork occurred from **January to May 2025**.

The methodology should specify:

- exact dates where possible;
- whether all four prefectures were surveyed during the same period;
- whether seasonality could influence prices, harvesting and market activity.

This is particularly important for economic variables because wood prices and market conditions may vary seasonally.

18. The study does not sufficiently distinguish legal and illegal activities

The Abstract states that some operators possess cutting permits while others operate fraudulently/illegally.

This is an important finding, but the manuscript should clearly define:

- legal operator;
- permitted cutting;
- customary access;
- unauthorized cutting;
- informal taxation;
- illegal logging.

The terminology should be legally and scientifically precise.

19. The value-chain map should be revised

Figure 1 identifies:

suppliers → production/transformation → storage/logistics → commercialization → consumers, with public institutions and associations appearing as supporting actors.

The conceptual framework is useful, but the map would be stronger if it showed:

- the specific actor at each stage;
- flow of wood;
- flow of money;
- flow of information;
- formal/informal institutions;
- points of value addition;
- points of taxation;
- locations of major activities.

This would make the “value chain” analysis substantially more rigorous.

20. The manuscript needs a clearer definition of “actors”

The manuscript refers to:

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- exploitants forestiers;
- transporteurs;
- grossistes;
- détaillants;
- consommateurs;
- transformateurs;
- fournisseurs;
- public institutions;
- associations.

However, the criteria used to classify an individual into each category are not clearly specified.

The authors should provide an **actor classification table** with:

Actor Definition Main activity Input Output Main cost Main income source

Important Issues with the Discussion

21. Several explanations are presented without empirical testing

The Discussion attributes differences in yield to:

- forest-resource availability;
- better technology;
- pressure on resources;
- market accessibility;
- transport infrastructure.

These explanations should either be supported by data from the survey or clearly identified as possible explanations.

The revised manuscript should distinguish:

Observed result → Evidence-based interpretation → Hypothesis requiring further investigation.

22. Sustainability claims require stronger ecological evidence

The manuscript concludes that exploitation threatens resource sustainability and discusses targeted exploitation of valuable species.

However, no direct ecological indicators are presented, such as:

- tree density;
- basal area;
- regeneration rate;
- diameter-class distribution;
- species abundance;
- annual harvesting rate;
- forest-cover change.

Therefore, the manuscript can reasonably discuss **potential sustainability concerns**, but it cannot establish forest degradation or unsustainable harvesting solely from the socioeconomic survey.

23. The manuscript should discuss limitations explicitly

A dedicated **Limitations of the Study** subsection is recommended.

It should acknowledge:

- voluntary participation;
- quota sampling;

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- possible respondent-selection bias;
- self-reported economic data;
- possible under-reporting of illegal activities;
- absence of longitudinal data;
- lack of direct forest inventory;
- uncertainty concerning yield measurements;
- possible seasonal effects.

This would substantially improve the scientific credibility of the paper.

Figures and Presentation

24. Figure 5 should be redesigned

The line graph used for discrete yield frequencies is not ideal.

If the x-axis contains discrete categories such as:

1, 3, 4, 5, 6 and 10 madriers/tree,

a **bar chart** would be more appropriate than a line graph.

25. Figure 6 should be simplified

The pie chart contains too many benefit categories and therefore becomes difficult to interpret.

Recommended alternative:

- histogram;
- box plot;
- grouped frequency table.

If the authors retain the pie chart, the income categories should be grouped into meaningful classes.

26. Figure 9 needs immediate clarification

Figure 9 is currently one of the manuscript's most problematic figures because its values appear incompatible with Figure 5 and the Abstract.

The authors should **recheck the original dataset and regenerate the figure**.

This is not merely a language or formatting issue; it potentially affects the scientific conclusions.

Language and Editorial Issues

The manuscript requires substantial English/French language editing.

Examples include:

- "Woodcraft activity" in the English Abstract, which may not accurately convey artisanal wood exploitation;
- "IBM SPSS sigmat plot";
- inconsistent spacing;
- grammatical errors;
- "Sustaible";
- "wordl's Forest";
- "TropicalForest";
- "IdustrialPolicy";
- "pesses de l'Université";
- inconsistent capitalization;
- inconsistent reference formatting.

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The English Abstract should be professionally edited. The current translation contains several awkward constructions, for example the phrase describing the market as sometimes "fluid" and sometimes the opposite.

References

The bibliography requires careful technical checking.

Several entries appear incomplete or contain typographical errors. For example:

- "Sustaible forest management";
- "State of the wordl's Forest";
- "IdustrialPolicy";
- "TorpicalForest";
- "Ponkorny" versus the spelling used in the Discussion;
- inconsistent journal titles and publication details.

The authors should verify every reference against the original source and follow the target journal's reference style.

Major Strengths

The manuscript nevertheless has several positive features:

1. **Relevant research topic** addressing forest-resource use and rural livelihoods.
2. Focuses on the **entire wood value chain**, rather than only logging.
3. Covers all four prefectures of the Faranah region.
4. Combines qualitative and quantitative approaches.
5. Uses participant observation, interviews, focus groups and KoboCollect-based formal surveys.
6. Provides a useful value-chain map.
7. Provides socioeconomic characteristics of respondents.
8. Identifies spatial differences among Faranah, Dinguiraye, Kissidougou and Dabola.
9. Provides useful information on tree-access mechanisms.
10. Highlights important economic differences among wood species.
11. The manuscript attempts to connect economic outcomes with forest governance and sustainability.

Final Recommendation

Decision: MINOR REVISION

The manuscript has **good potential and contains useful field-level information on the artisanal wood value chain in the Faranah region**. The combination of socioeconomic information, actor mapping, economic analysis and spatial comparison is valuable.