**Author Report of Changes**

**Reviewers’ Comments and Authors’ Responses**

**Reviewer A:**

This paper seeks to appraise an outgrower scheme project for Paprika value chain in Zambia. The main focus of the paper is to quantitatively estimate the cost and benefit of the scheme to identify its viability in Zambia and also identify the risks that can make the project fail. The author identifies exchange rate, international prices and farm yield rate uncertainty as potential factors that can reduce the profit of farmers. The authors proceed to carry out a financial cost benefit analysis – tagged as base. Some specific comments on the methodology and motivation of the paper:

**Reviewer A, Comment #1, Part i:**

i. It is not clear how the authors are motivating this paper. Is this paper criticizing peer reviewed papers that did not do cost benefit analysis the right way and offering an improvement in the methodology or what is the base framework. This is very important because a sensitivity analysis does not justify an inadequate cost benefit analysis tagged as the base model.

**Authors’ response to Reviewer A, Comment #1, Part i:**

**We agree with the referee’s comment.**

**We had elaborated further in a number of ways to improve the background and the context of the paper. We added an entire new section # 2 pages 4 -6 and all other sections are shifted forward accordingly.**

**Our effort to improve the motivation of the paper is structured in a way to implicitly answer a series of questions:**

**1. Why contract farming? This is discussed on Page 2, section 1, paragraph 1,2**

**2. Why paprika? Section 1, page 2, paragraph 3**

**3. Why Zambia? Section 1, page3, last paragraph**

**4. Why contract farming schemes in Zambia? Section 2, page 4, paragraph 1 and 2**

**5. Why the need for quantification of the nature and magnitude of the risks?**

**Section 2, page 5, last paragraph.**

**Reviewer A, Comment #1, Part ii:**

ii. Yield estimates described as extensions of the base framework sounds to me like what should have been done the first place.

**Authors’ response to Reviewer A, Comment #1, Part ii:**

**We agree that a more complete discussion is warranted early on that deals with the issues surrounding yield and whether the crop is rain-fed or irrigated. Crop yields are one of the most critical risk variables of such a scheme in Zambia. These issues are discussed on page 5, section 2, paragraph 3.**

**Reviewer A, Comment #1, Part iii:**

iii. Sensitivity analysis for exchange rate may be appropriate but in this case there is a way of forecasting the exchange rate which should be factored in the CBA framework.

**Authors’ Response to Reviewer A, Comment #1, Part iii:**

**The referee’s point is well taken. We mistakenly eliminated an important explanation of how we projected the base case market exchange rate over time in the financial model of the project. This is now rectified in section 2 page 6 last paragraph in that section. A base case PPP market exchange rate is projected using an initial “equilibrium real exchange rate” and then adjusting the market exchange rate over time in a manner that is consistent with the assumptions of the movement of prices , both domestically and foreign over time.**

**Reviewer A, Comment #2, Part i:**

i. An economic cost benefit analysis was not carried out by the authors that could have factored in all the environmental/social cost of the scheme.

**Authors’ Response to Reviewer A, Comment #2, Part i:**

**We agree that the appraisal of the scheme is more meaningful if an economic analysis were also done and reported. We have now brought a summary of the economic analysis of the base case of proposed scheme into the paper. It is on page 12, Section 4.2. Although desirable, we have not been able to include any environmental impacts of the scheme but we have been able to incorporate all the tax and subsidies imposed on goods, services as well as labor. The analysis also includes an evaluation of the economic welfare impacts of the differences between the shadow price of foreign exchange and the market based real exchange rate. This gap is measured by the foreign exchange premium.**

**Reviewer A, Comment #2, Part ii:**

Conclusions of the authors that public funding should be invested may be good but cannot be concluded from this study. Hence those recommendations are not based on the results on the study.

**Authors’ Response to Reviewer A, Comment #2, Part ii:**

**The conclusion section of the paper has been extensively revised to tie the conclusions more closely to the results of the analysis. This is presented in pages 24 to 26. On the specific point of the justification of public funding of irrigation, the objective is to find a way to finance such capital expenditures in a way that the servicing of the financing can be carried out over an extended period of time with some flexibility in the year to year repayments. The proposed public funding of irrigation with repayment through water charges would have the desirable properties.**

**Reviewer B:**

**Reviewer B Comment #1, Part i:**

i. This paper is prepared with a very narrow view on running a model to quantify the risks in a specific supply chain. The paper fails however to indicate why this is necessary and also to help us understand the reason and background of the paper. The authors need to seriously work developing a more sensible background and context as well as purpose statement for the paper.

**Authors’ Response to Reviewer B Comment #1, Part i:**

**We agree with the referee’s comment. Both referees made this point forcefully.**

 **We had elaborated further in a number of ways to improve the background and the context of the paper. We added an entire new section # 2 pages 4 -6 and all other sections are shifted forward accordingly.**

 **Our effort to improve the motivation of the paper is structured in a way to implicitly answer a series of questions:**

**1. Why contract farming? This is discussed on Page 2, section 1, paragraph 1 and 2**

**2. Why paprika? Section 1, page 2, paragraph 3**

**3. Why Zambia? Section 1, page3, last paragraph**

**4. Why contract farming schemes in Zambia? Section 2, page 4, paragraph 1 and 2**

**5. Why the need for quantification of the nature and magnitude of the risks?**

**Section 2, page 5, last paragraph.**

**Reviewer B Comment #1, Part ii:**

ii. Quantify the risks is certainly important and the authors went about this rather well but the arguments supporting all the analysis are rather sketchy. As a result the paper is rather boring and stale. It also does not position the paper in a disciplinary context and therefore it is not evident where the paper is making its disciplinary contribution and why there is a likelihood that the paper will be cited. These things need to be provided to strengthen the paper and to help the journal to at least attract citations from the paper.

**Authors’ Response to Reviewer B Comment #1, Part ii:**

**The referee makes a valid point in that the conclusions in the original draft were not tied closely enough the analysis of the risks and hence might not have a high enough potential for citation. In fact we are not aware of any such quantitative analysis of the risks of contract farming schemes using Monte Carlo simulations. We have also tried to rectify this concern through a reworking of the conclusions to tie them more closely to the results of the risk analysis. This is done on pages 24 to 26. We feel now that the lessons of this careful quantitative risk analysis are very strong, particularly with respect to the financing of such schemes. It is often proposed that with the greater role of the private sector in contract farming that loan financing of capital investments and working capital is a feasible financial structure (in fact this is the common recommendation of FAO). This analysis shows that such methods of finance are likely to not be suitable given the nature of the cash flow variability that are normal for many such high value export crops.**