

Interactive comment on “Recent revisions of phosphate rock reserves and resources: reassuring or misleading? An in-depth literature review of global estimates of phosphate rock reserves and resources” by et al.

Anonymous Referee #1

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Overall quality

The aim of the paper is to critically assess the reserve estimate approach used by the IFDC. This aim is described and placed in context well in the introduction section and has three components:

- 1) Is the simplification method used by the IFDC have appropriate safeguards
- 2) Is the concentration versus ore reporting by the IFDC understood by the general scientific community

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- 3) Is the estimate of reserve in Morocco by the IFDC report accurate?

The aims are important as the IFDC report has a major influence on the peak phosphorus debate. These aims are addressed and answered in sections 3-5 using detailed and thorough referencing in a well-structured fashion. The conclusions are sharp and in agreement with the rest of the paper. I strongly recommend the paper be accepted subject to minor corrections listed below.

Specific questions/issues:

The location and number of section headings are appropriate and helpful, however the names of the headings are generally vague or confusing e.g.: “Problem statement” instead of: Introduction

“In conclusions” instead of: Conclusion

“PR longevity estimates in recent literature; a lake of confusion” instead of: Literature confusion of PR estimates.

The paper has a number of pointers to things within the article that are vague and distracting to the reader. E.g. line 16 page 1015: “either hypothetical or speculative (see above)”. Consider either deleting the vague pointers or alternatively point to the section directly e.g. see section 3.1. These pointers in generally make the article appear to be poorly structured when in fact it is well structured.

Technical minor issues:

Line 1 Abstract: typo Indispensable

Line 6 Abstract (and elsewhere particularly page 1025): 16 000 MtPR in 2010 to 65 000 MtPR suggest changing units to Gt so as to remove unnecessarily zeros. Lined 6 page 1007: doubled up use of the word essential: “essential plant nutrient essential”

Line 18 page 1007: (Dery and Andersson, 2007; Cordell et al, 2009) Mohr and Evans 2013 (philica 380) have also examined peak phosphorus.

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Line 11 page 1010: “Approximately 82%... remainder for other industrial purposes”
This sentence requires a reference.

Line 5 page 1019: “and the remainder is considered an occurrence in view of the great depth at which these deposits are located (70% at depths between 5000 and 30 000 feet, or 1500 to 9000 m, Bauer and Dunning, 1979, 162–263 and 199–200).” It would be useful to state the current depth of some deep mining that current occurs – e.g. platinum in South Africa to highlight the extremeness 9 km and the current maximum depth of phosphate rock mining.

Line 12, page 1019: “in sum” delete.

Line 12 page 1023: “Conversion to concentrate would significantly further reduce quantity that can be recovered as concentrate.” Suggest delete word significantly (or attempt to quantify it).

Line 2 page 1024 (and elsewhere): use of the word decennia, suggest changing this to decade(s)

Line 5 page 1028: typo: In conclusion.

Interactive comment on Earth Syst. Dynam. Discuss., 4, 1005, 2013.