**Comments on**

**"Landslide susceptibility mapping by using GIS along the China Pakistan economic corridor (Karakoram Highway), Pakistan"**

- It should be noted that the idea of landslide susceptibility mapping using AHP method is not novel. It was largely explored by various researchers. For me, it is a case study and studies are classified as a "Technical note or report". *The readers have high expectation from a high-quality journal such as Nat. Hazards Earth Syst. Sci. by high Impact Factor (IF).* Although I appreciate the effort of authors to develop regional landslide susceptibility map based on the field data pertinent to actual landslides.

- Equally, the AHP is not without problems. Weights are derived in the AHP procedure but these weights themselves are dependent on the a priori classification, which can be suboptimal. In the present manuscript, it is slightly disappointing to see improvements that cannot be explained or traced back to data interaction or model errors.

- There is a real lack of geomorphological expertise in the relationship between variables and landslides. You accumulate numbers from statistics but the reader does not see what the actual contribution of your statistics, what it brings in addition to the knowledge of the phenomena.

- The paper has a lack of flow. I have some problems with figures that are poorly explained or difficult to follow.

- Only the application of the model is not a big deal, ***researchers should have responsibility and accountability with their results***. What are the lessons to be remembered? For example, are there characteristic portions of the landscape that can be identified that are landslide prone?

<u>**General comments**</u>

1) Abstract
   a) The abstract seems copy paste of some sentences forms the main body of the manuscript. Not need to describe how Himalaya was formed in the manuscript. Highlight what is existing in instability problem and what is your contribution.

2) Introduction
   a) The introduction provides somehow sufficient background information, however, the authors need to provide an explanation about the necessity using the proposed models within the research in the particular area.
   b) "Some geoscientist incorporate………" you have to put more consistent references.

c) In the introduction, the objectives and hypothesis you be established and findings shall be written in your result section. How your research is different from others and what is your specific idea? should be mentioned.

3) General situation of the study area

a) I am confused with your study area, is it just a buffer area of the road, right? But after reading this section and geology part, it seems more about regional scale containing unnecessary areas.

b) The geological description is out of the scope, it's like a report. You should describe the effect of geological units and structure and existence of landslide.

4) Causative Factors and Spatial Distribution analysis

a) How and why did you select 10 conditioning factors? What is the basis of that?

b) It is not clear how selected conditioning factors influence generation of landslides?

c) In this large area, only major faults play an important role? Included lineament attributes.

d) How did you make classes for continuous data such as slope, elevation, drainage proximity, curvature etc.? Do have you try to make a sensitivity analysis of different classes? If you aggregate the three first class, the final probabilities increase in these locations? You do not make sensitivity analysis on the different data and classes, but it is the first step to have a robust strategy of LSA and robust final susceptibility map!

e) How did you prepare the rainfall map? Is that annual max rainfall, mean rainfall, event base rainfall or total rainfall etc?

f) Is the proximity of streams only one hydrological factor? You have DEM, why did not you generate others like TWI, SPI, STI etc?

g) Explain how changes in landcover control the spatial distribution of landslide in your study area. Did you compare imageries?

5) Methodology

a) A poor architect was presented in the methodological part.

b) What is the real improvement of the field reconnaissance survey? How many landslides have been corrected in term of locations and type? You have to put more details about the approach, results and improvements. You can take example about that in the parer of Fressard et al., 2013. They compared different inventories and the improvements of field survey. Please explain why you focus on thes landslide types...

c) Give reference to SCP. It is not clear the accuracy assessment of landcover map. This should be in result part not in the methodological section.

6) Results

    a) With threshold do you used to split the weighted map into four categories? How do you choose these values? This is an important point that is not justified or described in the text.

**No discussion paragraph?** The authors estimate that their approach does not require a minimum of objective criticism? This is very pretentious because there is much to be said about the strategy of calibration/validation of study approach.

**Remark:**

As it was written earlier in the comments: LSA requires a real expertise and knowledge of field to make susceptibility maps. It is not enough to make statistics and put themin an article to make this article a scientific publication !