

## Research Paper

## Measurement and resilience analysis to retrogressive trend of rangeland in natural ecosystems

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**ABSTRACT**

Nowadays, theories and attitudes around crises management seek to create resilient communities against hazards and natural crises. Therefore resilience is considered as a way for strengthening communities based on their capacities. In this regard, various concepts, approaches, indicators and measurement models have been developed. The aim of this study is to measure and analysis of resilience of rangeland users in the Nardin village, Mayamey district, Semnan province in facing with natural ecosystem retrogressive trend. The research method is of descriptive-analytic type and sample size based on Morgan table is estimated 28 actors of rangeland. Initially, review of theoretical literature was done so that components and dimensions of resilience were specified. Next, applying questionnaires, it was attempted to compute the average resilience of rangeland beneficiaries of Nardin village faced with regression. Through one-sample t- test, the average resilience for each of the six components was estimated and by applying Friedman test, values of the components were ranked.

Based on results, the average resilience of rangeland beneficiaries in Nardin village is 2.88. This is indicative of non-desirable resilience of beneficiaries in this traditional boundary which is lower than Middle desirable (3), thus improvement of resilience must be in priority for subsequent planning and resource allocations.

**Key words:**

Resilience, Rangeland user, Natural ecosystem Retrogressive trend, Nardin village

**Extended Abstract****1. Introduction**

Theories and attitudes around crises management seek to create resilient communities against hazards and natural crises. Resilience is therefore a way for strengthening communities based on their capacities ; therefore, various concepts, approaches,

indicators, and measurement models have been developed in this regard. Resilience is ability of systems to absorb and recover from the impact of disruptive events without fundamental changes in function or structure, which depend on the flexibility and adaptive capacity of the system as a whole, rather than simply strengthening structures or institutions in relation to specific stresses, as in the hard resilience approach. The dramatic changes of world effects on the way crises are viewed with the intention of the dominant perspective and have shifted

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from mere focus on reducing vulnerability to increasing resilience against hazards and crises. As a matter of fact, one of the fundamental strategies for reducing vulnerability of social systems and accordingly reinforcement of local communities' sustainability encountered with environmental crises including natural ecosystems' regression is boosting the resilience of these communities against emerging agitation in ecological systems. Present study is an attempt to measure and analyze the resilience of rangeland beneficiaries of Nardin village, Mayamei County, Semnan province faced with natural ecosystems' regression.

## 2. Methodology

The research method is of descriptive-analytic type and sample size based on Morgan table is estimated 28 beneficiaries of rangeland. Initially, review of theoretical literature is done. Therefore, components and dimensions of resilience were specified. Next, applying questionnaires, it is attempted to compute the average resilience of rangeland beneficiaries of Nardin village faced with regression. Through one-sample t- test, the average resilience for each of the six components is estimated and by applying Friedman test, values of the components are ranked. Lastly, effective coefficient of each component upon resilience of beneficiaries is measured through multiple regression analysis.

## 3. Results

Based on the research results, it is found out that the average resilience of rangeland beneficiaries in Nardin village is 2.88. This is indicative of non-desirable resilience of beneficiaries in this traditional boundary which is lower than Middle desirable (3); hence, improvement of resilience must be in priority for subsequent planning and resource allocations. Moreover, the findings of one-sample t-test showed that human component by an average of 2.9 is near to Middle desirable (i.e. 3) but it was not the case for other components. Besides, according to Friedman test, social variables were found optimum within the sample population. It was also revealed that the item religious beliefs of an average of 4.6 had the highest value but the item migration to cities following rangeland degradation of 2.57 average had the lowest value. Human variables were assessed low from sample population point of view. Furthermore, the item vulnerability in case of rangeland degradation by an average of 6.1 had the highest value but the item rangeland beneficiaries' sufficient level of literacy of average 2.14 had the lowest value. Friedman test regarding economic component indicated that "instable economic condition of households

faced with rangeland degradation of 10.73 averages had the highest value but possessing financial resources once rangeland is degraded of 2.14 average showed the lowest value. It was as well found out that institutional variables through sample population outlook were evaluated low. The variable appropriate organization and inspection of traditional boundary for reducing rangeland pressure of 3.36 averages had the best value but striking governmental contributions following rangeland degradation of 1.32 averages had the lowest value. Friedman test of the physical component indicated that accessibility to communication infrastructures such as telephone and mobile with an average of 4.79 had the highest value but satisfaction with drinking water network of average 1.46 had the lowest value. According to outcomes, natural variables were evaluated low among sample population members. Investigation of averages pertinent to this component revealed that the problem with providing fodder following rangeland degradation of average 4.54 has the highest value on the other hand, restoring and reclaiming activities' implementation for coping with rangeland degradation of average 1.96 has the lowest value in the region.

## 4. Conclusion

To conclude, out of six investigated components of resilience, the socio-cultural dimension followed by natural aspect indicate more appropriate and better state than other aspects among rangeland beneficiaries of Nardin village. A community is called resilient in which all indicators, components, and dimensions of resilience together grow and improve. Incongruous improvement of different dimensions will not necessarily result in resilience of community members. Priority of socio-cultural and natural dimensions for resilience of rangeland beneficiaries of Nardin village is of paramount importance but it does not suffice and it is not expected to let practitioners and policymakers turn blind eye to improvements in other dimensions for realizing resilience.