A Balancing Approach To Determine The Technical Sustainable Provincial Headquarters: A Restructuring Case Of Federal Republic Of Nepal

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Abstract— The decision to fix the headquarter location is one of the most critical tasks in the restructuring of the nation. Nepal is restructured with seven federal provinces with 77 districts by the new constitution of federal democratic Nepal [1]. This study purpose, the decisions regarding the sustainable technical location of provincial headquarters in Nepal. The selection of headquarter is done with comparing the common weightage (area, GDP, establishments, population and literacy rate) and common aerial center distances of districts of the provinces. The findings will be the reference for assembly members and policymakers on decision making to settle the regional headquarters of provinces in Nepal.

Index Terms— Nepal; Headquarters; Public Service Centers; Sustainability; Restructuring; Local Economy

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1 INTRODUCTION

As per the constitution of Nepal, 288-2,[1] the capital(here in this paper we call headquarter) of state is to be decided by the two-thirds majority of the state assembly members. The constitution of Nepal was promulgated in 2015. In this restructuring constitution, there are seven federal provinces and 77 districts in Nepal. The geographic map of Nepal is as shown in figure 1. Under constitution first new state assembly election was held in 2017. Due to diverse nature of Assembly Members, the concurrent thinking on the determination of state name and capital is a difficult task. The federalism debate in Nepal[2] presented the restructuring problems and challenges. There is always debate about fixing the best shared centers [3], [4]. The motive of public administration shard centers has long term and strategic impact [5]. The common service center is the bridge of the citizen[6], this public administration shard center is to be carefully chosen and balanced[7].

Figure 1 Map of Nepal

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There are many researchers who have studied on profit-oriented business firms headquarters[7]–[14]. There are some meaningful facts on the determination of headquarter, Service center, shared center. The relocation of business headquarters considered various factors as tax, good airport facilities, averages wages and so on[12] [15]. The shared services center is fixed considering the direct relationship, mediating and outcome effects [16]. The corporate headquarter in a business needs to consider the spatial configuration with respect to the headquarters functioning [17].On the basis of supply chain management, the logistics center determination is the key problem these days[18]. The sustainable center location is selected through the evaluation of each alternative and ranked and select the best center [19]. The center can also be located on the basis of static and dynamic pricing and availability of space[20]. Headquarter is a driving force of the corporate groups [21], this is to be set between central location between east and west.

There are some example studies on firm/production plant location decision study [22]–[25],. Various factors as pricing, availability of resources, transportation, future perspective and so on are considered. Researchers have different views and considered different major and minor factors, as some considered transportation cost is the most important factor while allocating the location of the industry[26].

The provincial headquarter of Government is the center of citizen services. These centers have consolidated access to private, multiple private and public sectors at a single location, transparently presented information about the province's activities and systematically collected the feedback of citizen[27]. The redevelopment plan is to fixing of missing links within the city center with 'people approaches'[28]. The headquarter is also the order coordination and consolidation centered common sourcing

management [29],this should to be accepted by all stake-holders.

This paper examines sustainable technical location of headquarter of provinces in Nepal using average weightage (area, GDP, establishment, population and literacy rate) and inter districts aerial center distance method using google distance measuring tool then further processed using Autodesk AutoCAD 2019-student version then on MS Excel 2013[30][30]. Each province is considered as a single cluster and the centroid as headquarter of the cluster in both weightage and the distance measurement methods. There are many factors which can be affected by fixing the location of the best service centers, here, we propose the technical centers. The findings will be the reference for assembly members and policymakers on decision making to settle the regional headquarters of provinces in Nepal.

2. METHODOLOGY

In this section, the selection framework of technical headquarters of the provinces with common inter districts distance and common weightage of districts approaches are discussed. It is difficult on shifting headquarter to the centroid of the data. Thus, the common district near to centroid is considered as the possible headquarter. Three conditions are assumed on determining the provincial headquarter in this study as; a) if a common district on both approaches select that as the Headquarter or b) if else, there more than one districts which are near to the centroid all districts are considered for possible headquarter and the common district from weightage and distance centroid methods is taken as the headquarter of the providence and c) else there is no common district in both approaches, select a district which is in center distance with more than three district. Figure 2 illustrates the flow works to determine the provincial headquarter.
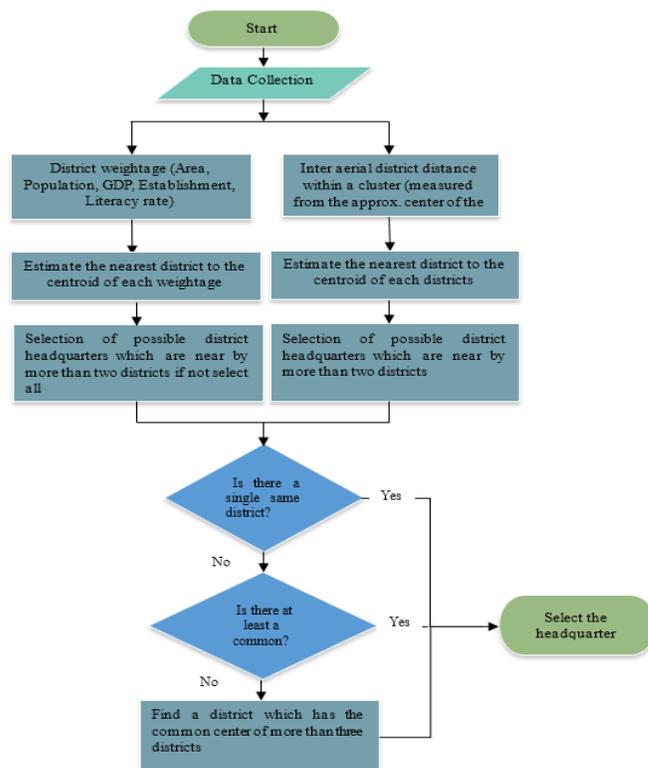

Figure 2 the flow work to select the Provincial headquarter

Let, i = {GDP, Literacy rate, Establishments, Area, Population and inter-district center distance}, x_i be the value and $\bar{x}$ be the centroid data. The probable headquarters is selected as the districts near to the centroid i.e. $i.e.\min(\ x_i - \overline{x_i})$. The probable headquarters district with the repetition of more than two are considered for the most possible headquarter district on weightage approach. Similarly, on the distance approach the most possible headquarters were observed then compare with weightage approach headquarter and a common headquarter is selected. This paper, we try to fix the sustainable headquarter to lie in the center of the province if there is no common district on both approaches, the probable headquarter district of distance approach having maximum repetition is considered the headquarter of the province.

3. DATA

The data to estimate headquarter of the provinces of Nepal, we took reference data of the Central Bureau of Statistics Nepal, Humanitarian Data exchange and google map distance measurement tool. Weightage parameters as GDP, Population, Establishment, Literacy rate and Area of the districts lying in provinces of different period were considered. Population, Literacy rate and Area are taken from the statistical data of 2011 census. The district wise GDP 2014 and district wise preliminary establishments' data as 2018 are considered. Determination of the district center is difficult. Thus, average center as the province 1 done in figure 3. The details of data are presented in

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Appendix I. The measured data were processed with google distance measurement tools and Autodesk AutoCAD 2019-student version then on MS Excel 2013.

Figure 3 Province no. 1 districts and estimated centers

4. ANALYSIS

From the experiment, we can see that Udayapur and Morang be the possible headquarter form five weightage (Area, Population, Literacy, Establishment and per capita GDP) approach and Bhojpur and Morang from distance measurement, then Morang is taken form the suitable headquarter for the province 1. Similarly, on province 2, Mohottari and sarlahi districts are the probable headquarter from distance approach and Bara, Rauttahat, Siraha, Mottari and Dhanusa districts from weightage method then Mottari is the suitable for the provincial headquarter. Lalitpur, Sindhupalchok and Makwanpur districts can be the probable headquarter from distance approach and from the weightage method Makwanpur and Bhaktapur then Makwanpur is taken for the suitable headquarter of the province 3. In province 4, Parbat, Nawalparasi east, Tanahun and Kaski districts are the probable headquarter location on distance measurement approach and Baglung from weightage method. There is no common district in both approaches. So, Parbat is taken for suitable headquarter because of the maximum no. of repetition of possible headquarter in distance measurement approach. Through the same way, district Pyuthan is the suitable headquarter of province 5. There is no common district in both approaches then maximum no. of repetition for possible headquarter in distance approach is considered for the suitable headquarter. On the province 6, district Rukum west is the suitable headquarter where Surkhet and Rukum west are the possible headquarter with respect to distance measurement and Rukum west from weightage approach. Likewise, Bajhang, Dadeldhura and Kailali are possible headquarter from distance measurement approach and Bajura, Achham, Baitadi, Bajhang and Darchula on weightage approach then common district Bajhang is selected for suitable headquarter of province 7. The summary of probable headquarters districts and suitable headquarter is presented in table 1 below and details of calculation are shown in Appendix I.
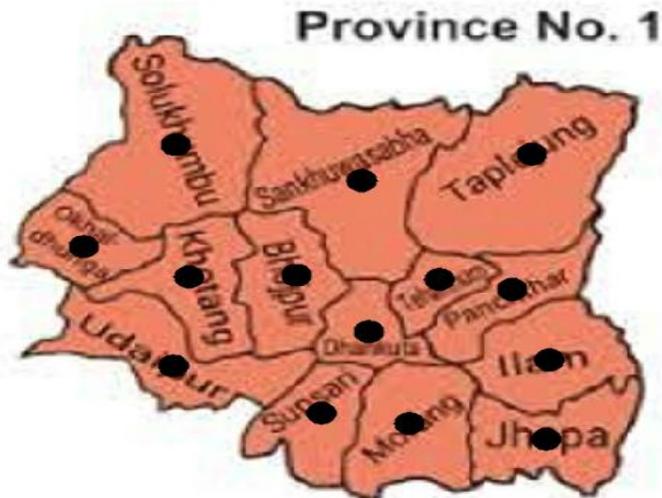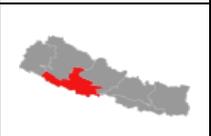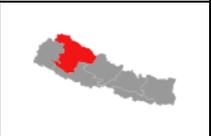
Table 1 Summary of possible and suitable headquarters

Province	Possible HQ district wrt distance	Possible HQ district wrt weightage	HQ district
1	Bhojpur/Morang	Udayapur/Morang	Morang
2	Mohottari/Sarlahi	Bara/Rauttahat/Siraha/Mottari/Dhanusa	Mottari
3	Lalitpur/Sindhupalchhok/Makwanpur	Makwanpur/Bhaktapur	Makwanpur
4	Parbat/Nawalparasi East/ Tanuhn/kaski	Baglung	Parbat
5	Pyuthan/Rukum East	Nawalparasi West	Pyuthan
6	Surkhet/Rukum West	Rukum west	Rukum west
7	Bajhang/Dadeldhura/Kailali	Bajura/Achham/Baitadi/Bajhang/Darchula	Bajhang

5. DISCUSSION AND CONCLUSION

Headquarter location decision is one of the most critical task in restructuring of the nation. Nepal is restructured with seven federal provinces with 77 districts after promulgating new constitution 2015. This study purposes, the decisions regarding the sustainable technical location of provincial headquarters in Nepal. The selection of headquarter is done with comparing the common weightage (area, GDP, establishment, population and literacy rate) and common aerial center distances of districts of the provinces. Current seven federal states in Nepal, headquarter districts, total districts on provinces and map as well as the technical headquarters from this study are summarized as in Table 2. We can see the technical headquarter district of provinces 1,2,3,4,5,6,7 are Morang, Mohottari, Makwanpur, Parbat, Pyuthan, Rukum west and Bajhang respectively.

Table 2 Provinces of Nepal

Province #(Name)	Current Headquarter District	Technical Headquarter district (proposed in this paper)	Number Districts	Map
Province No. 1	Morang (Temporary)	Morang	14	
Province No. 2	Dhanusa (Temporary)	Mohottari	8	

Province No. 3	Makwanpur (Temporary)	Makwanpur	13	
Province No. 4(Gandaki)	Kaski	Parbat	11	
Province No. 5	Rupandehi (Temporary)	Pyuthan	12	
Province No. 6 (Karnali)	Surkhet	Rukum west	10	
Province No. 7 (Sudurpashchim)	Kailali	Bajhang	9	

Nepal is a mountainous landlocked country. Here in this paper, we assumed the average center and aerial distance of the districts of the province and used the technical data to determine the common data centers which is the limitation of this study. The findings will be the reference for assembly members and policymakers on decision making to settle the regional headquarters of provinces in Nepal.

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REFERENCES

[1] Constitution of Nepal, "The Constitution of Nepal, 1962," vol. 2015, no. September, 1962.

[2] K. Hachhethu, "Balancing Identity and Viability: Restructuring Nepal into a Viable Federal State," *Fed. Debate Nepal Post Peace Agreem. Const. Mak. Nepal*, vol. II, pp. 35–52, 2014.

[3] B. A. Allen, L. Juillet, G. Paquet, and J. Roy, "E-Governance & government on-line in Canada: Partnerships, people & prospects," vol. 18, pp. 93–104, 2001.

[4] G. Schwarz, *Public Shared Service Centers*. 2014.

[5] B. Bergeron, *Essentials of Shared Services*, vol. 14. 2002.

[6] L. S. Guria, R. Patankar, and D. Tyagi, "Common Service Center's Innovative Delivery of Financial Literacy and Investor Awareness," *Proc. Spec. Collect. eGovernment Innov. India - ICEGOV '17*, pp. 27–33, 2017.

[7] M. Janssen and A. Joha, "Motives for establishing shared service centers in public administrations," *Int. J. Inf. Manage.*, vol. 26, no. 2, pp. 102–115, 2006.

[8] B. Ambos and V. Mahnke, "How Do MNC Headquarters Add Value?," *Manag. Int. Rev.*, vol. 50, no. 4, pp. 403–412, 2010.

[9] T. Kostova, V. Marano, and S. Tallman, "Headquarters-subsidiary relationships in MNCs: Fifty years of evolving research," *J. World Bus.*, vol. 51, no. 1, pp. 176–184, 2016.

[10] F. Ciabuschi, H. Dellestrand, and U. Holm, "The role of headquarters in the contemporary MNC," *J. Int. Manag.*, vol. 18, no. 3, pp. 213–223, 2012.

[11] U. Andersson and U. Holm, "Managing the contemporary multinational: The role of headquarters," *Manag. Contemp. Multinatl. Role Hqrs.*, 2010.

[12] J. Holt, W. R. Purcell, S. J. Gray, and T. Pedersen, *Decision factors influencing mnes' regional headquarters location selection strategies*, no. August. 2008.

[13] S. Finger and E. Menipaz, "Regional Headquarters of Multinational Corporations: Literature Review and Taxonomy," *Menipaz, E., Ben Gal, I., Logist. a Flat …*, no. June, pp. 1–9, 2008.

[14] K. Hayakawa and K. Shiino, "Singapore | 15 March 2018 Singapore as Location of Choice as Regional Headquarters for Japanese MNEs : Strengths and Challenges," no. 15, pp. 1–8, 2018.

[15] V. Strauss-Kahn and X. Vives, "Why and where do headquarters move?," *Reg. Sci. Urban Econ.*, vol. 39, no. 2, pp. 168–186, 2009.

[16] UK National Audit Office, "Shared service centres," *Financ. Manag.*, no. May, pp. 38–39, 2008.

[17] S. Kunisch, M. Menz, and J. Birkinshaw, "Spatially dispersed corporate headquarters: A historical analysis of their prevalence, antecedents, and consequences," *Int. Bus. Rev.*, vol. 28, no. 1, pp. 148–161, 2019.

[18] S. H. Owen and M. S. Daskin, "Strategic facility location: A review," *Eur. J. Oper. Res.*, vol. 111, no. 3, pp. 423–447, 1998.

[19] C. Rao, M. Goh, Y. Zhao, and J. Zheng, "Location selection of city logistics centers under sustainability," *Transp. Res. Part D Transp. Environ.*, vol. 36, pp. 29–44, 2015.

[20] T. Zhang, G. Q. Huang, H. Luo, and R. Zhong, "Storage pricing and allocation in a headquarter-managed centralized distribution center," *Procedia CIRP*, vol. 25, no. C, pp. 33–38, 2014.

[21] "Austria," *ABA-Invest in Austria*, p. 14, 2014.

[22] I. Review, "Facility location models for distribution planning," no. 1972, 1985.

[23] G. D. Eppen, R. K. Matin, and L. Schrage, "Scenario approach to capacity planning," *Oper. Res.*, vol. 37, no. 4, pp. 517–527, 1989.

[24] C. O. Fong and V. Srinivasan, "The Multiregion Dynamic Capacity Expansion Problem , Part I," *Oper. Res.*, vol. 29, no. 4, pp. 787–799, 1981.

[25] J. Krarup and P. M. Pruzan, "The simple plant location problem: Survey and synthesis," *European Journal of*

Operational Research, vol. 12, no. 1. 1983.

[26]   V. Van Thai and D. Grewal, "Selecting the location of distribution centre in logistics operations: A conceptual framework and case study," *Asia Pacific J. Mark. Logist.*, vol. 17, no. 3, pp. 3–24, 2005.

[27]   E. Access, I. Service, and R. Corruption, "Citizen Service Center."

[28]   B. Spierings, "Fixing missing links in shopping routes: Reflections on intra-urban borders and city centre redevelopment in Nijmegen, the Netherlands," *Cities*, vol. 34, pp. 44–51, 2013.

[29]   T. Zhang, G. Q. Huang, T. Qu, and Z. Li, "Headquarter-centered common sourcing management through order coordination and consolidation," *Comput. Oper. Res.*, vol. 40, no. 8, pp. 2011–2025, 2013.

[30]   " office.microsoft.com" .