Measuring Green Banking Practices on Bank's Environmental Performance: Empirical Evidence from Kathmandu valley

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Abstract

The research paper aims to analyze the impact of green banking practices on bank's environmental performance in Nepal. The casual relational research design has been adopted in the study. The simple and stepwise multiple regression analysis have been performed to accomplish the objective of the research. The research paper follows cross-sectional qualitative research with descriptive outcome. The Chronbach's Alpha has been used to analyze the reliability of instruments and data. The 189 samples have been collected from the banks using convenience sampling method. The SPSS software has been used to tabulate and analyze the data. The research paper concluded the energy efficient equipments and green policy posed the significant impact on bank's environmental performance; green loan and green project as not. Similarly, the environmental training contributed mild to bank's environmental performance. The findings of the paper suggested the role of banks and government in encouraging environmentally sustainable technologies as highly important for increasing bank's reputation and awareness among customers.

Keywords; Environmental Training, Energy Efficient Equipments, Green Policy, Green Loan, Green Project

Introduction

During the last few decades, shifting of societal concern towards environmentally

friendly practices has been the prime concern of governments, policy makers, business firms and the public justified through a number of dialogues on issues pertaining to environmental protection and `climate change. Couples of years back, issues pertaining to environment were barely relevant to financial sectors (Shaumya & Anton Arulrajah, 2017). However, at the current times banks have been viewed as contributing to pollution through their operations and increasing emission of carbon dioxide via use of airconditions, lights, electronic and fuel equipment, financing environment polluting projects. Such problem impacts directly on the supply chain disruption and indirectly on the health leading to loss of man-hours and efficiency (Koiry, Saha, Farid, Sultana, & Haque, 2017). Therefore, implementation of green banking has become the need of the hour, promoting environment-friendly practices and reducing carbon footprints establishing the internal banking processes, physical infrastructure and information technology effective towards the environment.

Instruments such as using online banking, opening up accounts at online banks, paying bills online (Ritu, 2014), offering credit cards (Tandon & Setia, 2017), they can play instrumental role in this regard. Consequently, achieving better performance in terms of environmental indicators is crucial. Environmental performance can be evaluated by set of indicators as low environmental releases, prevention of pollution, waste minimization and recycling activities (Lober, 1996). The year 2009 was marked by coming of the first green bank based in Mt. Dora, Florida, United States (Jayabal & Soundarya, 2016). However, Laxmi Bank was the first bank initiating green banking strategies in Nepal (Mehta & Sharma, 2016) followed by Standard Chartered Bank. Laxmi bank focuses on digitization basically through two core services namely mobile money service and internet banking (Lama, 2018). Introducing such initiatives avoids customer-counter delay and provides access to easy finance; added Lama. Amongst others, Clean Energy Development Bank and Sanima Bank seems encouraging hydropower investment, solar energy development funds; Standard Chartered Bank Nepal (SCBN) has been able to achieve reduction in consumption of diesel, electricity, and water by 2 %, 12%, and 13% respectively in 2011 vis-à-vis 2010 (Standard Chartered Bank, n.d.).

Objective

To analyze the impact of green banking practices on bank's environmental performance in Kathmandu, Nepal.

Hypotheses

H1: There is significant relation between green banking practices and bank's environmental performance in Nepal.

H2: There is significant relation between green policy and bank's environmental performance in Nepal.

H3: There is significant relation between environmental training and bank's environmental performance in Nepal.

H4: There is significant relation between energy efficient equipment's and bank's environmental performance in Nepal.

H5: There is significant relation between green loan and bank's environmental performance in Nepal.

H6: There is significant relation between green project and bank's environmental performance in Nepal.

Literature Review

Conceptual Framework

The research paper has attempted to deal with four dimensions namely employee related practices, daily operation related practices, customer related practices and bank's policy related practices constituting five independent variables along with their relationship with the dependent variables. Bank's environmental performance being the dependent variable whereas environmental training, energy efficient equipment, green loan, green project, and green policy being the independent variable.





Green Banking Strategies

According to (Jha & Bhome, 2013) the green banking strategies for sustainable developments were mentioned below:

Going Online

Online initiatives like e-banking, using less paper, less energy, and less expenditure on projects assists in power saving and resource preservation.

Using Green Checking Accounts

Its usage rate can be increased by providing higher rate of interest, waiver of fees, and the like.

Green Loans for Home Improvements

Providing low or differential interest loans to customers for purchasing solar equipment's.

Power Saving Equipment

Power efficiency may be the introduction of solar-powered ATM, replacing General Lamp Shape (GLS) or incandescent bulbs with LED bulbs.

Saving Papers

Banks should buy recycled paper products with the highest post-consumer waste content possible.

Green Credit Cards

Using green credit cards can motivate non-profit NGO as the bank will contribute fund to them on account of environment conservation. Furthermore, the schematic representation of factors influencing the green banking practices as per (Jovonk, 1998) is mentioned below:

Green product and services

Green product and services for bank refers to the product and services that helps in achieving resource utilization efficiency followed by improved financial performance of the bank.

Green Strategies

Eric G. Olson defines green strategy as complements the business, operations and asset strategies already understood and articulated by the enterprise that has a positive impact on the environment.

Green Checking Accounts

Using ATM to examine the accounts is referred as green checking account.

Authors	Research Methodology	Major Findings
(Salvado,	Empirical study using	Environmentally proactive
Castro, Verde, &	questionnaire design and	strategies had promoted
Lopez, 2013)	research resume.	ecological innovation and could
		lead to competitive advantage.
(Jha & Bhome,	Telephonic interaction and	Green banking practices was
2013)	personal interview including	a way of conducting business
	structured questionnaire were	along with considering the social
	served with random method of	and environmental impacts on its
	sample collection.	activities.
(Rajput, Arora, &	Empirical test was done using	Environmental performance
Khanna, 2013)	data panel regression method	and financial performance were
(0: 001()	from 1997 to 2013.	positively related.
(Gopi, 2016)	Primary and secondary data	Banks were indirectly
	interviewe and faste presented	degradation by financing projects
	in the form of table graph	whose activities put pegative
	charts and nie diagram using	impact to the environment
	convenience sampling and	were now encouraging projects
	descriptive research design.	that shown its concern for
		environment.
(Aubhi, 2016)	Qualitative research design	Few commercial banks
	was employed. Secondary	were engaged in in-house
	source of data collected through	environmental management
	research papers, sustainability	and were contributing towards
	reports of different banks and	environmental friendly finance
	environmental organizations.	through their Green Energy
	Microsoft office package had	Loans. However, more scope to
	been used for summarized and	contribute and made adequate
	illustrated the collected data	investment in generating
	systematically.	renewable energy did exists.
(Shaumya &	Univariate, bivariate and multi	Adopting green banking practices
Anton Arulrajah,	variate analysis was done	ultimately resulted in saving the
2017)	among employee of commercial	environment and enhancing the
	banks using primary data using	performance of the banks.
	disproportionate stratified	
	sampling survey method.	
(Tandon & Setia,	Primary and secondary data	Central bank and the government
2017)	nad been used after conducting	snould collectively play a
	pilot survey. Garrett's ranking	proactive role and formulate
	techniques was also used.	green policy guidelines.

Table 1 Summary of Literature Review

Research Methodology

The perceptions of the 189 commercial bankers were collected, that had included 25 pilot survey respondents working in Kathmandu valley. The convenience sampling method had been used. The casual relational research design had been adopted in the research. The 152 sets of questionnaires had been selected for further coding and analysis.

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S.N	Sample Banks	Total No. of Staff in Sample Banks	No. of Questionnaire Distributed	Remarks
1.	Agricultural Development Bank Ltd.	200	33	Government Bank
2.	NIC Asia Bank	127	38	Merged Bank
3.	Sanima Bank	112	41	Encourage green initiatives
4.	Laxmi Bank	137	43	First bank to initiate green banking practices
5.	Siddhartha Bank	85	34	Private Sector bank

The data were statistically analyzed using Statistical Package for Social Sciences Software (SPSS) version 20.0. The simple and stepwise multiple regression analysis were performed to accomplish the objective of the study. The research paper follows crosssectional qualitative research with descriptive outcome. Chronbach's Alpha was used to analyze the reliability of instruments and data.

Regression Models							
Model	Equation						
1	$GB_BEP=\beta_0 + \beta_1 ET + e$						
2	$GB_BEP = \beta_0 + \beta_2 EEF + e$						
3	$GB_BEP=\beta_0+\beta_3GP+e$						
4	$GB_BEP = \beta_0 + \beta_4 GL + e$						
5	$GB_BEP = \beta_0 + \beta_s GP_i + e$						
6	$GB_BEP=\beta_0 + \beta_1 ET + \beta_3 GP + e$						
7	$GB_BEP=\beta_0 + \beta_1 ET + \beta_2 EEF + \beta_3 GP + e$						
8	GB_BEP= $\beta_0 + \beta_1 ET + \beta_2 EEF + \beta_3 GP + \beta_4 GL + \beta_5 GP_1 + e$						
Where Y=	Bank's Environmental Performance						
X ₁ = Envir	onmental training						
$X_2 = Energ$	x = Energy efficient equipment's						

Table 3

 X_3 = Green Policy X_4 = Green Loan X_5 = Green Project β_0 = intercept of the regression and $\beta_1 \beta_2 \beta_3 \beta_4 \beta_5 \beta_6$ are the coefficient of regression

Research Findings

Correlation Analysis

The result shows, the Coefficient of correlation (r) is 0.268 indicating mild positive correlation between green banking practices and bank's environmental performance with the level of significance at 0.001 (p<0.05). Similarly, the Spearman's rho is 0.194 with the level of significance at 0.017 (p<0.05) conclusive of the positive relation between green banking practices and bank's environmental performance.

Table 4 **Correlation Matrix** Green Bank Green Banking Practices BEP Green Bank BEP* Pearson Correlation 1 .268** *Bank's Environmental Sig. (2-tailed) .001 Performance 1 Spearman's rho .194* Green Banking Practices Sig. (2-tailed) .017

Regression Analysis

Coefficient of Green Banking Practices on Bank's Environmental Performance

The analysis revealed R square at 0.068 with level of significance level is 0.001(p<0.05) implying 6.8% of the variability in bank's environmental performance is accounted by green banking practices.

Tahlo 5

Green Banking Practices on Bank's Environmental Performance								
Model	R	R Square	Adjusted R Square	Std. Er	ror of the Estimate			
1	.262	.068	.062	2.60033				
Coeffici	ents							
Model		Unstandardized Standardiz Coefficients Coefficient		zed T ts				
		В	Std. Error	Beta				
1	(Constant)	4.517	1.282		3.524 (0.001)			
	Green_Banking_ Practices1	.085	.026	.262	3.321 (0.001)			

Predictors: (Constant), Green Banking Practices1 Dependent Variable: Green Bank BEP

Simple Regression Analysis

The 9.8% of the variability in bank's environmental performance is accounted by green banking practices with level of significance for environmental training at 0.061 meaning, it is at the margin of statistical significance (Ogee, et al., 2015). Similarly, P<0.05 for energy efficient equipments (0.009), green policy (0.008) whereas P>0.05 for green loan (0.224) and green project (0.175) confirms green loan and green project has not significant influence on bank's environmental performance.

Table 6 Simple Regression Analysis										
Model	R		R Square		Adjusted S	Square R S	R Std. Error of the Estimate			
1 Coeffic	.312 ients	.098			.067	2.59	2.59423			
Model			Unstandardized Coefficients		Standardized Coefficients	т	Sig.			
				В	Std. Error	Beta				
	(Constant	:)		9.301	1.150		8.090	.000		
	Env_Train	1		.160	.085	.151	1.887	.061		
1	Energy_Ef	f1		.274	.103	.273	2.661	.009		
I	Green_Po	licy1		265	.098	269	-2.707	.008		
	Green_Lo	an1		122	.100	108	-1.220	.224		
	Green_Pro	oject1		141	.103	122	-1.364	.175		

Dependent Variable: Green_Bank_BEP

The overall fitness of the model (F-statistics) has been reported at 11.029 with the level of significance at 1% as shown in the ANOVA table below.

Table 7 Analysis of Variance							
	Model	Sum of Squares	Df	Mean Square	F	Sig.	
	Regression	74.578	1	74.578	11.029	.001	
1	Residual	1014.257	150	6.762			
	Total	1088.836	151			_	

Dependent Variable: Green_Bank_BEP Predictors: (Constant), Green_Banking_Practices1

Stepwise Regression Analysis

Bank's Policy Related Practices (Green Policy and Bank's Environmental Performance)

The paper acknowledges R square at 0.018 implying 1.8% of the variability in bank's environmental performance is accounted by green banking practices with level of significance at 0.098. Since, p>0.05, the null hypothesis is accepted.

Bank's Policy Related Practices							
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate			
1	.135	.018	.012	2.66970			

Tabla 0

Predictors: (Constant), Green_Policy1

Dependent Variable: Green_Bank_BEP

Mod	el	Sum of Squares	Df	Mean Square	E	<u>.</u>
				mean equare	Г	Sig.
Regi	ression	19.744	1	19.744	2.770	.098 ^b
1 Resi	idual	1069.091	150	7.127		
Tota	al	1088.836	151			

Table 9

Dependent Variable: Green_Bank_BEP

Predictors: (Constant), Green_Policy1

Bank's Policy and Employee Related Practices (Green Policy and Environmental Training)

Table 10 Bank's Policy and Employee Related Practices							
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate			
1	.201ª	.040	.028	2.64797			

Predictors: (Constant), Env. Train1, Green Policy1

Dependent Variable: Green Bank BEP

The paper reveals R square at 0.04 with level of significance at 0.046 (p<0.05) indicating 96% of variance of bank's environmental performance is affected by other variables leading to the rejection of null hypothesis. The fitness of the model (F-statics) is at 3.144.

Analysis of Variance						
	Model	Sum of Squares	Df	Mean Square	F	Sig.
	Regression	44.083	2	22.042	3.144	.046
1	Residual	1044.752	149	7.012		
	Total	1088.836	151			

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Dependent Variable: Green_Bank_BEP

Predictors: (Constant), Env. Train1, Green Policy1

Bank's Policy, Employee and Daily Operation Related Practices (Green Policy, Environmental Training and Energy Efficient Equipments)

The paper reveals R square at 0.067, 93.3% of variance of bank's environmental performance is affected by other variables. Of 9.8 % of the variability in the independent variable, majority (6.7%) of the variability is explained by bank's policy, employee and daily operation related practices. The level of significance is at 0.016 (p<0.05). Hence, null hypothesis is rejected.

Table 12 Bank's Policy, Employee and Daily Operation Related Practices						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.258	.067	.048	2.62026		

Predictors: (Constant), Energy Eff1, Env. Train1, Green Policy1 Dependent Variable: Green Bank BEP

Table 13								
Analysis of Variance								
	Model	Sum of Squares	Df	Mean Square	F	Sig.		
	Regression	72.700	3	24.233	3.530	.016		
1	Residual	1016.135	148	6.866				
	Total	1088.836	151					

Dependent Variable: Green Bank BEP

Predictors: (Constant), Energy Eff1, Env. Train1, Green Policy1

Conclusion

The research paper had confirmed statistically significant and positive impact of green banking practices on bank's environmental performance in Nepal explaining 6.8% of the variation in dependent variable with level of significance at 0.016 (p<0.05).

Conclusion Summary			
	Independent Variables	Regression Result	Remarks
1.	Environmental Training	0.061	Accepted (Ogee, et <i>al</i> ., 2015)
2.	Energy Efficient Equipment's	0.009	Accepted
3.	Green Policy	0.008	Accepted
4.	Green Loan	0.224	Rejected
5.	Green Project	0.175	Rejected

Tabla 14

Similarly, in simple regression analysis environmental training (0.061), energy efficient equipments (0.009), green policy (0.008) were significant contributor whereas green loan (0.224) and green project (0.175) were not significant with R square of 9.8%. The bank policy related practices (green policy), employee related practices (environmental training) and daily operation related practices (energy efficient equipments) were significant at 0.016 (p<0.05) whereas customer related practices (green loan and green policy) were not significant predictor of bank's environmental performance. Even though customer related practice seemed to be one of the green banking practices, it does not directly contribute to the environmental performance of the banks as it directly deals with the customers' or general environmental performance.

Implications

The adoption of green banking strategies will assist the bank to transact with these dangers involved in the business operation. The green banking engage key stakeholders and create awareness about green banking and their impact on the economy, environment and the society (Singh, 2015). It involves banks in carbon credit business, wherefrom services in the area of green development and carbon credit business can be delivered. The products like green credit cards, financial concession (solar, bio-gas, wind and hydro plants) should be provided to customers for using eco-friendly products and services, social clean-up campaigns should be encouraged. Government should provide incentive to first ranked green unit to measure the practices of green banking. Banks should encourage environmentally sustainable technologies that enhance bank's reputation (Biswas, 2011). Both banks and government of Nepal should take initiative to bring awareness among customers regarding green banking (Mehta & Sharma, 2016).

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References

American Psychological Association. (2009). Publication Manual of the American

Psychological Association. Washington, USA: APA Service Center.

- Aubhi, R. U. (2016). The Evaluation of Green Banking Practices in Bangladesh. *Research Journal of Finance and Accounting*, 7(6), 94-125. Retrieved July 17, 2018, from http://www.iiste.org/Journals/index.php/RJFA/article/view/30055/30871
- Biswas, N. (2011). Sustainable Green Banking Approach:The Need of the Hour. *Bsiness* Spectrum, 1(1), 32-38. Retrieved January 2018
- Gopi, S. (2016). A Study on The Impact of Green Banking in Environmental Protection. International Journal of Advance Research and Innovative Ideas in Education, 1(4), 382-388. Retrieved February 2018, from http://ijariie.com/ AdminUploadPdf/%E2%80%9CA_STUDY_ON_THE_IMPACT_OF_GREEN_BANKING_ IN_ENVIRONMENTAL_PROTECTION%E2%80%9D_WITH_A_SPECIAL_REFERENCE_ TO_SBI_PALAKKAD_DISTRICT_KERALA_1382.pdf
- Jayabal, D., & Soundarya, M. (2016). Green Banking: As Bamks Initiative for Sustainable Development. International Journal of Management, 7(7), 276-280. Retrieved from http://iaeme.com/MasterAdmin/uploadfolder/IJM_07_07_030/IJM_07_07_030. pdf
- Jha, D. N., & Bhome, S. (2013). A study of Green Banking Trends in India. International Monthly Referred Journal of Research in Management & Technology, II, 127-132. Retrieved January 4, 2017, from https://www.abhinavjournal.com/images/ Management_&_Technology/May13/15.pdf
- Jovonk, K. (1998). Környezet és Fejlődès Világbizottság jelentése. *Mezőgazdasági Kiado*.
- Koiry, S., Saha, J. K., Farid, M., Sultana, M., & Haque, M. (2017). Awareness and Perception of Bank Customers towards Green Banking in Sylhet District of Bangladesh. Asian Journal of Economics, Business and Accounting, 5(2), 1-12. Retrieved January 2018, from http://www.journalrepository.org/media/journals/AJEBA_50/2017/ Dec/Koiry522017AJEBA37811.pdf
- Lama, S. (2018). what initiatives are taken by laxmi Bank to Promote green banking practices? (S. K. Joshi, Interviewer) Kathmandu, Kathmandu, Nepal.
- Lober, D. (1996). Evaluating the environmental performance of corporations. 8(2), 184-205. Retrieved February 2018
- Mehta, D., & Sharma, D. (2016). Customers Persistence for Green Banking in Nepal. Asian Research Consortium, 6(10), 30-44. doi:10.5958/2249-7323.2016.00050.X
- Ogee, A., Elis, M., Stone, B. K., Scibilia, B., Pammer, C., & Steele, C. (2015). What Can You Say When Your P-Value is Greater Than 0.05? (M. B. Editor, Ed.) Pennsylvania, United States: The Minitab Blog. Retrieved October 2, 2018, from http://blog.minitab.com/ blog/understanding-statistics/what-can-you-say-when-your-p-value-is-greaterthan-005
- Rajput, D. N., Arora, M. S., & Khanna, M. A. (2013). An Emperical Study of Impact of Environmental Performance on Financial Performance in Indian Banking Sector. International Journal of Business and Management Invention, 12(9), 19-24. Retrieved June 22, 2018, from http://www.ijbmi.org/papers/Vol(2)9/Version-1/ D0291019024.pdf

- Ritu. (2014). Green Banking: Opportunities and Challenges. *International Journal of Informative & Futuristic Research, 2*(1). Retrieved December 30, 2017, from http://www.ijifr.com/pdfsave/25-09-2014828V2-E1-015.pdf
- Salvado, J. A., Castro, G. M., Verde, M. D., & Lopez, J. E. (2013). In S. Hart (Ed.), Environmental Innovation and Firm Performance: A Natural Resource-Based View (p. 79). United Kingdom: Palgrave Macmillan. Retrieved May 26, 2018, from https://books.google.com.np/books?hl=en&lr=&id=yn5fR3kq1RQC&oi=fnd&pg=PP 2&dq=Environmental+Innovation+and+Firm+Performance:+A+Natural+Resource-Based+View+publisher+name&ots=hDY19ACvGT&sig=jtYbsrnbBRkXCpcoONjMM JVLFrk&redir_esc=y#v=onepage&q&f=false
- Shaumya, K., & Anton Arulrajah, A. (2017). The Impact of Green Banking Practices on Bank's Environmental Performance: Evidence from Sri Lanka. *Journal of Finance and Bank Management*, *5*(1), 77-90. Retrieved February 2018, from http://jfbmnet. com/journals/jfbm/Vol_5_No_1_June_2017/7.pdf
- Singh, Y. (2015). Environmental Management Through Green Banking: A study of Commercial Banks in India.
- Standard Chartered Bank. (n.d.). Retrieved from Standard Chartered Bank Website: https:// www.sc.com/np/sustainability/scb-nepal-activities/en/
- Tandon, M. S., & Setia, M. (2017). Green Banking: An Innovative Initiative for Attaining Sustainable Development. International Journal of science Technology and Management, 6(1), 46-53. Retrieved December 31, 2017, from http://www.ijstm. com/images/short_pdf/1483426770_Page_46-53.pdf