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**INSTITUTE OF ENGINEERING**

 **PULCHOWK CAMPUS**

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**DEPARTMENT OF MECHANICAL ENGINEERING**

**LALITPUR, NEPAL**

**MONTH, YEAR**

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**ABSTRACT**

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**TABLE OF CONTENTS**

Copyright………………………………………………………………………………….II

Approval page…….……………………………………………………………………...III

Abstract…...……………………………………………………………………………...IV

Acknowledgement....……………………………………………………………………..V

Table of Contents………………………………………………………………………...VI

List of Tables……………………………………………………………………………VII

List of Figures…….…………………………………………………………………....VIII

List of Symbols….………………………...…………………………………………......IX

List of Acronyms and Abbreviations……….………….....…………………………........X

**CHAPTER ONE: INTRODUCTION…………………………………………………..1**

* 1. Sub-heading……………………………………………………………………….2
		1. Sub Sub-heading…………………………………………………………………..3
		2. Sub Sub-heading…………………………………………………………………..4
	2. Sub-heading……………………………………………………………….……....5

**CHAPTER TWO: LITERATURE REVIEW……………………………...…………..8**

* 1. Sub-heading……………………………………………………………………….9
		1. Sub Sub-heading…………………………………………………………………10

**CHAPTER THREE: RESEARCH METHODOLOGY……………………………..15**

* 1. Sub-heading……………………………………………………………………...16
		1. Sub Sub-heading…………………………………………………………………17

**CHAPTER FOUR: RESULTS AND DISCUSSION..………………………………..18**

* 1. Sub-heading……………………………………………………………………...19
		1. Sub Sub-heading…………………………………………………………………20

**CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS………………21**

* 1. Sub-heading……………………………………………………………………...22
		1. Sub Sub-heading…………………………………………………………………23

REFERENCES…………………………………………………………………………..24

APPENDIX A: Title of Appendix……………………………………………………….25

**LIST OF TABLES**

Table 1: Name of the table………………………………………………………………2

Table 2: Name of the table………………………………………………………………5

Table 3: Name of the table………………………………………………………………9

**LIST OF FIGURES**

Figure 1: Name of the figure………………………………………………………………4

Figure 2: Name of the figure………………………………………………………………6

Figure 3: Name of the figure……………………………………………...……………...12

**LIST OF SYMBOLS**

$η\_{motor}$ Efficiency of the Motor

$μ$ Refractive index of the Glass

**LIST OF ACRONYMS AND ABBREVIATIONS**

FAO Food and Agricultural Organization

GDP Gross Domestic Product

HDI Human Development Index

NARC Nepal Agriculture Research Council

**CHAPTER ONE: INTRODUCTION**

* 1. **Background**

Agriculture is the backbone of national economy, means of livelihood for majority of population, main source of GDP, income and employment opportunities in Nepal………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

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**CHAPTER FOUR: RESULTS AND DISCUSSION**

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**CHAPTER FIVE: CONCLUSION**

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**REFERENCES**

1. Acharya, A., Sigdel, A. K. & Thapa, D., 2003. *Development of modified mechanism of rice transplantation machine to suit terai region of Nepal,* Pulchwok, Lalitpur: Department of Mechanical Engineering.
2. AEC-FNCCI, 2070. *Agriculture Mechanization policy-2070 final Draft,* Kathmandu: Agro Enterprise Center- Federation of Nepalese Chambers of Commerce and Industry.
3. AMI, 1967-84. *Research Reports,* s.l.: Agricultural Mechanization Institute.
4. Datta, S. K. D., 1981. *Principles and Practices of Rice Production.* Philippines: A Wiley-Interscience publication, JOHN WILEY & SONS.
5. DOAEngineering, 2012. *Directorate of Agricultural Engineering.* [Online]
Available at: http://doaengg.gov.np/index.php?page=bikas-prayas
[Accessed 6 August 2015].
6. FAO, 2012. *FAO Statistical Year Book 2012, Part three Feeding the world,* Rome, Italy: Food and Agriculture Organization.
7. Gami, V. & Justice, S., 1998. Preliminary Report: Women Farmer Participatory Testing and Evaluation of the IRRI 6-Row Rice Transplanter in Rupendehi District. In: P. R. Hobbs & N. P. Rajbhandari, eds. *Proceedings of Rice-Wheat Research End-of-Project Workshop, 1-3 October 1997, Hotel Shangri-La, Kathmandu, Nepal.* Mexico: Nepal Agricultural Research Council (NARC), International Maize and Wheat Improvement Center (CIMMYT) and Rice-Wheat System Research Consortium, pp. 91-94.