

# Land Use Capability Classification for the Indian Subcontinent

Amresh Chandra Pandey



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# Foreword

Land use capability classification applies a system of grouping land into various classes based on some common characteristics of the land such as soil, topography, annual rainfall, drainage facility and existing practices. The idea is to put the land to use according to its suitability in a sustainable manner. The book is intended to develop a land use capability classification keeping in view the Indian condition. All the chapters are well elaborated with examples.

Knowledge about land use capability classification is essential for students of Agricultural Engineering, Soil Science and professionals of Water Resources Engineering. I am sure that this book, which includes the basics of classification systems with application in Indian scenarios, will serve the student community as well as the Faculties of Agricultural Engineering/Soil Science/Water Resources Engineering Department to a great extent by providing up-to-date information clearly and concisely.

I would like to compliment Dr Amaresh Chandra Pandey for having brought out this book with quite useful and valuable information for the Under Graduate and Post Graduate students in India and abroad.

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# Preface

This book is an eye opening approach in the field of Sustainable Agriculture. This book is useful for diploma students of Agriculture, the student of B.Sc.(Ag), B. Tech. Agricultural Engineering, for the Post Graduate student of disciplines related to Land and Water Management Engineering eg. Soil and Water Conservation Engineering, Irrigation & Drainage Engineering, Hydrology etc. For the Ph.D. student and researchers, the book has the capability to open the new avenues of research. Considering the need for broad group of student, the book has been written in very simple language. The Land Use Capability Classification is the base of all the Agricultural Technologies developed for sustainability of Agriculture, because each and every technology developed or recommended are need based. The need of any recommendation arises only when the problem has been identified. Thus the Land Use Capability Classification System helps us to identify the appropriate technology for the region in question, to bring it in its full potential. The existing land use capability classification system recommended for India is almost a true copy of USDA LUCC system with few minor changes, which has been discarded now because it does not suit to the Indian conditions. The sixty-four soils of India, considered as benchmark soils of India by national bureau of soil survey and land use planning (ICAR) and the Land Use Class allotted to these, are absolutely true but the methodology is not clear at all. In the present LUCC in India several factors are considered to classify a land and recommending a particular class for it but in the absence of any precise and accurate method of specific evaluation of soil and land characters, there is always an ambiguity, overlapping and confusion in classifying lands, which falls in two adjoining classes. Due to the unsuitability for Indian conditions of present LUCC system, uncertainty about the impact of factors affecting and their proper role in allocation of Land Class and lack of clear cut demarcation between adjoining classes, made the existing LUCC a very complex term and cumbersome process to its adoptability in Agriculture.

Considering the above facts this book has been developed for a systematic, precise and accurate evaluation of various soils and land characters to evaluate it for a land class. The book discusses a method of LUCC in which the confusions are removed and land classification has been made in a clear cut way without any ambiguity or confusion by adopting the award of numerical weight age method.

I hope this book will be very much useful for the diploma, under graduate, post graduate doctorate students, Scientists and also for the policy makers, involved with the development of Agriculture.

**Amresh Chandra Pandey**

# Acknowledgment

First of all I would like to say thanks to the all mighty God and my Parents, who have given me such a nice life in which, would be able to work on such an important topic. Every word of obligation and acknowledgement will be less to say thanks to Prof. N. N. Sirothia, so the author would like to dedicate this work to him for his contribution in completion of this work as he has shared all his, of more than 45 years in depth knowledge and experience regarding this topic without any reservation and shown his keen interest, constant encouragement in making this work to its height.

I wish to express my deep sense of gratitude to the persons are in my heart and souls and are with me at my every ups and downs of my life my Parents, elder brothers and sisters Dr. Avinash Chandra Pandey, Dr. Akhilesh Chandra Pandey, Dr. (Smt.) Maya Mishra, Dr.(Smt.) Chhaya Mishra younger brother and sister Dr. Avinash Chandra Pandey, Dr. (Smt.) Mamta Pandey, my better half i.e. my wife Kalpana and the most loving thing on the earth my two loving and cute daughters AADYA & ANANTA. This work is the result of their kind blessing, love, encouragement, inspiration and support throughout the work and life.

**(AMRESH CHANDRA PANDEY)**

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**Dr Amresh Chandra Pandey** (1973) is working as Scientist (Agril. Engg.) under Directorate of Extension Education, Birsa Agricultural University, Ranchi, Jharkhand, India since July, 2004. He has done his B. Tech. (Agril. Engg.) & M.Tech. (Soil and Water Conservation Engg.) from Allahabad Agricultural Institute, University of Allahabad, U.P., India. He has completed Doctorate degree from Veer Bahadur Singh Purvanchal University, Jaunpur, U.P., India, in Agricultural Chemistry and Soil Science. Before joining Birsa Agriculture University, served Udai Pratap Autonomous College, Varanasi as Part time Lecturer for three year (1998-2001) and worker as Research Associate for three years (2001-2004) at Indian Agriculture Research Institute, New Delhi. Dr Pandey has more than 22 years experience in teaching, research and extension. Dr Pandey has written one international awarded Book, published 44 international research papers, developed eight internationally recognized software related to Land and Water Management Engineering, delivered four International & fifty-four National level lectures, published more than twenty abstracts and Eight full length conference papers in various International and National Conferences and received two “Best Paper Presentation Award”. He has written more than 50 popular articles, delivered various talks on TV and Radio at regional level on the topic related to Land and Water Management Engineering. He is the life member of Indian Society of Agricultural Engineers, Indian Association of Soil and water Conservationists, EM INTERNATIONAL, Eurasian Academy of Environmental Sciences, Society of Applied Biotechnology, GRABS Educational Charitable Trust and International Association of Scientific Innovations and Research, Georgia, USA. He is the member of reviewer/editorial board of fourteen International Research journals. He has received Fellow awards from Eurasian Academy of Environmental Sciences, Society of Applied Biotechnology and Indian Institute of Oriental Heritage. Apart from Fellow Awards, Dr Amresh Chandra Pandey has received twenty International and twenty-three National Awards by various International Societies. His Biography is being published in various International and National level since 2010. Dr Pandey is well recognized young Scientist in the field of Land and Water Management Engineering.



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