Vishwawarana National Research Journal

(A Biannual Journal of Multi disciplinary Research Articles)

EDITOR IN CHIEF & PUBLISHER

Dr. Mrs. S. B. Shahapure

Principal, Y. C.Warana Mahavidyalaya, Warananagar.

Email : ycwcwarana@yahoo.co.in

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Editor in Chief
Mrs. Dr. S. B. Shahapure
Principal, Y. C. Warana
Mahavidyalaya, Warananagar,
Dist : Kolhapur (MS)
Mob : 9420931515
Phone : 02328-224041
Fax : 02328-224031
Email : ycwcwarana@yahoo.co.in
Website : www.ycwmwarana.org.in

Editorial Office
Dr. Manohar G. Shinde
Executive Editor
Y. C. Warana Mahavidyalaya,
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EDITORIAL...

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VISHWAWARANA RESEARCH JOURNAL VOI- NO. YEAR ISSN NO.

CONTENTS

प्रयोजनमूलक हिंदी

* श्रीमती सुरेखा बाळासाहेब शहापुरे

सारांश / रुपरेखा

प्रयोजनमूलक हिंदी को हिंदी की नितांत नई छवि माना गया है । प्रयोजनमूलक हिंदी रोजगारपरक भाषा है जो जीविकोपार्जन के लिए होती है। प्रयोजनमूलक हिंदी में व्यावहारिक उपयोगिता को अधिक महत्व दिया जाता है । 'प्रयोजनमूलक हिंदी' मनुष्य के दैनिक जीवन में विभिन्न संदर्भो, विषयों और कार्यक्षेत्रों में प्रयुक्त होती है और उसके विशिष्ट प्रयोजन भी होते हैं। प्रयोजनमूलक हिंदी की सबसे बडी विशेषता उसकी प्रयोजनीयता है । प्रयोजनमूलक हिंदी अपने क्षेत्र विस्तार के कारण विभिन्न रूपों में प्रयुक्त हो रही है। बोलचाल की हिंदी, व्यापारी हिंदी, कार्यालयीन हिंदी, तकनीकी हिंदी, प्रशासनिक हिंदी, शास्त्रीय हिंदी, समाजी हिंदी, साहित्यिक हिंदी और जनसंचार माध्यमों में हिंदी ये प्रयोजनमूलक हिंदी के विभिन्न रूप हैं । प्रयोजनमूलक हिंदी की उपयोगिता अन्य क्षेत्रों में रक्षा सेवा क्षेत्र, अनुवाद क्षेत्र, सिविल सेवा परीक्षाएँ आदि में निरंतर बढती जा रही है ।

सांकेतिक शब्द – प्रयोजनमूलक हिंदी, जनसंचार माध्यम, संरचना, संप्रेषण, व्यंजनात्मकता, जीविकोपार्जन, तकनीकी, प्रशासनिक, शास्त्रीय, वेबसाइट, युनिकोड

प्रस्तावना – हिंदी भारत के हृदय की कुंजी है । वह भारत और हर भारतवासी की अस्मिता और सांस्कृतिक परंपरा की वाहिका है । हिंदी अपने स्वभाव और स्वधर्म से ही सदा आगे देखने वाली भाषा है । वह समग्र भारतीय अस्मिता की वाणी है । आज हिंदी केवल साहित्य की भाषा नहीं है । अब उसके प्रयोजन बदल गए हैं । अत 'प्रयोजनमूलक हिंदी' हिंदी की नितांत नई छवि है । इसे कार्मिकी (फंक्शनल), व्यावहारिक, कामकाजी अनुप्रयोगात्मक, प्रशासनिक ऐसे नाम भी दिए गए हैं । किंतु अब 'प्रयोजनमूलक' शब्द ही रूढ हो गया है ।

'प्रयोजनमूलक हिंदी' शब्द में 'प्रयोजन' विशेषण में 'मूलक' उपसर्ग लगा है । 'प्रयोजन' का अर्थ है 'उद्देश्य' या 'हेतु'। जिसे अंग्रेजी में 'Purpose of Use' कहते हैं । 'मूलक' उपसर्ग का अर्थ है 'आधारित'। ''अंग्रेजी में इसके लिए शब्द है 'Based On' । अत: प्रयोजनमूलक भाषा का तात्पर्य हुआ विशिष्ट उद्देश्य के अनुसार प्रयुक्त भाषा''। प्रयोजनमुलक हिंदी के उद्देश्य हैं

१. हिंदी की व्यावहारिक उपयोगिता से परिचित होना ।

२. हिंदी के द्वारा सफल अनुवादक तैयार करना ।

३. हिंदी के वाक्य–विन्यास और संरचना की जानकारी लेना ।

४. दैनिक व्यवहार में प्रयुक्त हिंदी शब्दावूी का बोध कराना ।

डॉ. श्रीमती सुरेखा बाळासाहेब शहापुरे
शोधनिर्देशिका एवं प्र. प्राचार्या,
य. च. वारणा महाविद्यालय, वारणानगर,
ता. पन्हाळा, जि. कोल्हापुर.

५. जनसंचार माध्यमों के अनुकूल बनाने हिंदी को विकसित करना ।

६. कार्यालयों में प्रयुक्त होनेवाली हिंदी भाषा का ज्ञान प्रदान करना ।

उपर्युक्त उद्देश्यों के आधार पर यह निश्चित होता है कि 'प्रयोजनमूलक हिंदी' भाषा का एक ऐसा रुप है जो मनुष्य के दैनिक जीवन में विभिन्न संदर्भों, 'विषयों और कार्यक्षेत्रों में प्रयुक्त होती है । और उसके विशिष्ट प्रयोजन भी होते हैं । प्रयोजन मूलक हिंदी का संप्रेषण अधिक स्पष्ट, सरा, लक्ष्यभेदी और अर्थगर्भित होता है । इसमें सामान्य या साहित्यिक हिंदी की तरह व्यंजनात्मकता, मुहावरेदारी, आलंकारिकता नहीं होती । क्योंकि यह जीवन तथा समाज के आवश्यकताओं की पूर्ति के लिए होती है । इस संदर्भ में लिखा है ।' ''प्रयोजनमूलक हिंदी जीवन की आवश्यकताओं की पूर्ति का माध्यम है । यह मानव जीवन की व्यवस्था से जडी होती है । इसकी मूल पहचान सामायिकता होती है । प्रयोजनमूलक हिंदी तथ्यपरक, अति, सामान्य, जन–जीवन में दैनिक कार्यों के संपादन में सक्षम, विशेष कार्यों के अनुकूल स्वरुप होती है ।''[२] व्याकरण के नियम, भाषा शुद्धता और भाषा संरचना की अपेक्षा व्यावहारिक उपयोगिता को अधिक महत्व दिया जाता है ।

व्यावहारिक या प्रयोजनमूलक भाषा का वह रुप है जो किन्हीं विशेष कार्य के संदर्भों में होता है । इसे अभ्यास एवं – ज्ञान के बल पर हासिल किया जाता है । इसमें विशेष शब्दावली और संप्रेषण कौशल होता है । अत: इससे व्यावहारिक प्रयोजनों की पूर्ति होती है । 'प्रयोजनमूलक हिंदी' की परिभाषा के संदर्भ में श्री मोटुरि सत्यनारायण ने लिखा है – 'प्रयोजनमूलक हिंदी से तात्पर्य है हिंदी का वह प्रयुक्तिपरक विशिष्ट रुप जो विषयगत, भूमिकागत तथा संदर्भगत प्रयोजन के लिए विशिष्ट भाषिक संरचना द्वारा प्रयुक्त किया जाता है और जो सरकारी, प्रशासन, विज्ञान एवं प्रौद्योगिकी के अनेकविध क्षेत्रों को अभिव्यक्ति प्रदान करने में सक्षम सिद्ध होता है ।'[३]

डॉ. नगेन्द्र और व्रजेश्वर वर्मा ने 'प्रयोजनमूलकता' को सारगर्भित, अर्थगर्भित और सही माना है । उनकी दृष्टि में – 'वस्तुत प्रयोजनमूलक हिंदी के विपरीत अगर कोई हिंदी है तो वह निष्प्रयोजनमूलक नहीं वरन् आनंदमूलक हिंदी है । आनंद व्यक्ति सापेक्ष है और प्रयोजन समाज सापेक्ष । आनंद स्वकेंद्रित होता है और प्रयोजन समाज की ओर ईशारा करता है । हम आनंदमूलक हिंदी के विरोध में नहीं है । इसलिए आनंदमूलक साहित्य के हम भी हिमायती हैं । पर सामाजिक आवश्यकताओं के संदर्भ में हम संप्रेषण के बुनियादी आधार को भी अपनी नार से ओझल नहीं करना चाहते ।' संप्रेषणीयता एवं विशिष्ट शब्दावली से युक्त 'प्रयोजनमूलक हिंदी' हमारे जीविकोपार्जन के लिए हैं । उसकी मुख्य विशेषताएँ इसप्रकार हैं –

१. प्रयोजनमूलक हिंदी में संवेदना की अपेक्षा विचार प्रधान होता है ।

२. प्रयोजनमूलक हिंदी एक अर्जित भाषा होती है ।

३. प्रयोजनमूलक हिंदी में संप्रेषण महत्वपूर्ण होता है ।

४. प्रयोजनमूलक हिंदी का प्रचलन प्रशासन, व्यवसाय, शिक्षा और विज्ञान में होता है ।

५. प्रयोजनमूलक हिंदी सीधी, स्पष्ट, एकार्थक और निश्चित होती है ।

'प्रयोजनमूलक हिंदी' कई रुपों में प्रयुक्त होती है । डॉ. व्रजेश्वर वर्मा, सत्यनारायण मोटुरि तथा डॉ. भोलानाथ तिवारी ने हिंदी के रुपों पर काफी प्रकाश डाला है । वे इस प्रकार हैं –

१. बोलचाल की हिंदी

२. व्यापारी हिंदी (वाणिज्यिक) मंडी की, दलालों की, सट्टा बाजार की भाषा

३. कार्यालयीन हिंदी

४. शास्त्रीय हिंदी (संगीतशास्त्र, काव्यशास्त्र, भाषाशास्त्र, दर्शनशास्त्र, योगशास्त्र, राजनीतिशास्त्र, कानून आदि ।)

५. जनसंचार माध्यमों की हिंदी

६. तकनीकी हिंदी

७. प्रशासनिक हिंदी

८. समाजी हिंदी

९. साहित्यिक हिंदी

प्रयोजनमलक हिंदी के प्रस्तुत विविध रुपों का विवेचन इस प्रकार है–

१. बोलचाल की हिंदी – हिंदी भाषा में एक लचीलापन है । वह देश, काल और परिस्थिति के अनुसार स्वयं को ढाल लेती है । किसी भी व्यक्ति के हिंदी बोलने का ढंग या शैली से हम पहानते हैं कि व्यक्ति किस परिवेश तथा प्रांत से संबंधित है । 'व्यावहारिक हिंदी वह है जिसे कि 'अपुन' मुंबई में बोलता है । कोलकोता में 'जानता' कहता है ।[४] हिंदी के अनेक बोलियों की सर्वग्राह्यता और प्रचलन द्रष्टव्य है । बोलचाल की हिंदी ने युग–युग से अपने स्वरुप और महत्व को रेखांकित किया है ।'

२. व्यापारी हिंदी – हिंदी एक जुझारु भाषा है । उसने इंटरनेट, विज्ञापन, फिल्म और प्रौद्योगिकी के क्षेत्र में दिखा दिया है कि वह बाजार के बदलावों के अनुरुप अपने को ढलाने में बेहद सक्षम है । भारत में व्यापारियों के बीच हिंदी पहो से ही प्रधान में थी । परंतु उदारीकरण के बाद विशेषकर विदेशी कंपनियों के भारत में आने एवं भारत की बडी कंपनियों के छा जाने से आज हिंदी ने बाजार की भाषा के रुप में अपना वर्चस्व बना दिया है । पिछले कई वर्षों से मार्केटिंग की सबसे सशक्त भाषा के तौर पर हिंदी उभरकर सामने आयी है । उदारीकरण के पश्चात बहुराष्ट्रीय कंपनियों का दुनिया के सबसे बडे बाजार में प्रवेश और उत्पादनों की विक्री तथा विज्ञापन दोनों के लिए उन्होंने हिंदी भाषा को ही अपना माध्यम बनाया है । डॉ. मायासिंह एवं डॉ. सिदेश्वर काश्यप के शब्दों में 'व्यापारी हिंदी के रुप में हिंदी वर्षों से मंडियों की भाषा. सर्राफे की भाषा, दलालों की भाषा, सट्टा बाजार की भाषा, क्रय–विक्रय की भाषा, विनिमय की भाषा के कार्यों को संपादित करती रही है ।[५]'

व्यापारी हिंदी में मुद्रा, पूँजी, सहकारिता, दिवालिया आदि शब्दों का, 'भाव आसमान को चढे,' 'बाजार गर्म है,' 'गेहूँ टूटा' 'चांदी में उछाल' आदि मुहावरों का और 'बाजार ने ओढी गिरावट की चादर,' 'मंदी की भेट चढे ५० उद्योग, हजारो बेरोजगार,' 'जमीन पर आ सकती है जमीन की कीमत,' 'लगातार पांचवे दिन शेयर बाजार लुढका,' 'शेअर बाजार धराशायी' आदि विशिष्ट शब्दावली का प्रयोग दिखायी देता है ।

३. कार्यालयीन हिंदी – हिंदी का यह रुप सरकारी कामकाज में प्रयुक्त होता है । 'शिक्षा, संस्कृति, श्रम एवं नियोान, खेल एवं प्रदर्शन, विधि एवं न्याय, वैज्ञानिक एवं ऊर्जा मंत्रालयों के कार्य–निस्पादन के लिए शब्दावली की विविधता को स्वीकारना कार्यालयी हिंदी की विशिष्टता और उपयोगिता को प्रामाणिकता प्रदान करती है ।[७]' कार्यालयीन हिंदी में 'राष्ट्रभाषा हिंदी' प्रयुक्त होती है । इसके अंतर्गत आलेखन, टिप्पणी, अनुवाद, पारिभाषिक शब्दावली, संक्षेपण, पत्रलेखन, विस्तारण आदि का समावेश होता है ।

४. शास्त्रीय हिंदी – विभिन्न शास्त्रों में भाषा के जो शब्द प्रयुक्त किये जाते हैं उनमें विविधता दिखायी देती है । दर्शनशास्त्र, योगशास्त्र, राजनीति, काव्यशास्त्र, भाषाशास्त्र, संगीतशास्त्र, राजनीतिशास्त्र, विधिशास्त्र आदि विभिन्न शास्त्र हैं । इन शास्त्रों में प्रयुक्त भाषा एवं शब्दावली में संप्रेषण क्षमता होती है । शास्त्रीय हिंदी में आवश्यकता के अनुसार अन्तर्राष्ट्रीय शब्दों को भी ग्रहण किया जाता है । जैसे – ऑक्सीजन, विटामिन, नाईट्रोजन, प्रोटॉन आदि । 'भारतीय भाषाओं में नये शब्द गढे गए हैं' – तार, महाद्वीप, अणु आदि । प्रत्ययों की सहायता से मानव, मानवीय, मानवीकरण, मानविकी आदि शब्दों का निर्माण हुआ है । अरबी फारसी के – जमानत, जिला, कानून, रिहाई आदि शब्दों को ग्रहण किया गया है ।[७] इसप्रकार शास्त्रों में प्रयुक्त विभिन्न

शब्दावलियाँ शास्त्रीय हिंदी की उपयोगिता को प्रमाणित करती हैं ।

५. जनसंचार माध्यमों की हिंदी – हिंदी का यह रुप रेडियो, दूरदर्शन, फिल्म और विज्ञापन में प्रयुक्त होता है । रेडियो भारत के 'घर–घर में पहुँचा है । उसने अपनी आवाज की जादू से दूरदर्शन के सभी भारतीय जनमानस को आकर्षित बना दिया है । इसने हिंदी गीतों के माध्यम से भारतीय जनमानस की भावाभिव्यक्ति को सशक्तता के साथ अभिव्यक्त किया और हद से यादा सफलता पायी है । भारत में ही नहीं बल्कि विश्वपटल पर हिंदी छा गयी है ।

दूरदर्शन ने हिंदी के प्रस्तुत रुप को अपनाकर अपना महत्वपूर्ण योगदान दिया है । 'इंदिरा गांधी मुक्त राष्ट्रीय विद्यालय तथा यू.जी.सी. के कार्यक्रमों ने संपूर्ण देश को महाविद्यालयीन कक्षा के रुप में परिवर्तित कर दिया है । दूरदर्शन के कतिपय कार्यक्रमों ने दर्शकों को भी भागीदार बना दिया है ।[८] दुनिया की सबसे बडी फिम इंडस्ट्री बॉलीवुड है । उसकी एक ही भाषा हिंदी है । बॉलीवुड ने हिंदी के प्रयोग में अहं भूमिका निभायी है । यह भी उतना ही सत्य है हिंदी ने बॉलीवुड को दुनिया की सबसे बडी फिल्म इंडस्ट्री बनाने में अपना योगदान दिया है ।

उपभोक्ता बाजार से लेकर समूचे मार्केटिंग तंत्र में हिंदी विज्ञापनों की भरमार है । विज्ञापन के रुप में हिंदी की एक नई पहचान बनी है । जैसे – 'ठंडा मतलब कोका–कोला,' 'खाओ गगन रहो मगन,' 'भिगोया, धोया और हो गया,' 'सात स्वादों में कुर्रम–कुर्रम–लिज्जत पापड'। टी.वी., रेडियो, फिल्म आदि पर विज्ञापन आते रहते हैं । पोस्टर, प्रदर्शनी, होर्डिंग आदि विज्ञापन के कई माध्यम होते हैं । हिंदी का लचीलापन, सरलता और वैज्ञानिकता के कारण फिल्म, दूरदर्शन, विज्ञापन और रेडियो में प्रयुक्त हिंदी का स्वरुप सर्वथा अलग होता है ।

कंप्युटर, इंटरनेट में भी हिंदी एक प्रमुख भाषा बनी है । इसमें अनेक वेबसाईटों का निर्माण कर हिंदी को सर्वव्यापक बनाया है । वेबसाईटों द्वारा हिंदी में ई–मेल करने की सुविधा प्राप्त हो गयी है ।

६. तकनीकी हिंदी – तकनीकी हिंदी अभियांत्रिकी, पत्रकारिता, यांत्रिकता, विज्ञान आदि के कार्य व्यापार को संप्रेषणीय बनाती है ।

७. प्रशासनिक हिंदी – सेना, पुलिस, न्यायालय, विधि में प्रशासनिक हिंदी का रुप प्रयुक्त है । इनसे संबंधित आग–आग शब्दकोशों को भी बनाया गया है ।

८. समाजी हिंदी – समाज के रीति–रिवाज, जीवन–पद्धति, संस्कार, पर्व–त्योहार एवं खेल–कूद में प्रयुक्त हिंदी समाजी हिंदी है । सलामी बल्लेबाज, मजबूत पकड आदि खेलकूद के शब्द हैं ।

९. साहित्यिक हिंदी – इसका प्रयोग काव्य, नाट्यशास्त्र एवं साहित्यशास्त्र आदि में होता है । हिंदी के आरंभिक काल में 'चंदवरदाई' ने 'पृथ्वीराज रासो' लिखकर हिंदी के साहित्यिक रुप को जन्म दिया । भक्तिकाल में रासो परंपरा से आग कबीर, जायसी, तुलसीदास, सूरदास, मीराँबाई, बिहारी, भूषण आदि कवियों ने साहित्य–सृजन किया । आधुनिक काल में भारतेंदु हरिशंद्र, प्रेमचंद, जयशंकर प्रसाद, सूर्यकांत त्रिपाठी निराला, माखनलाल चतुर्वेदी, महादेवी वर्मा आदि ने हिंदी साहित्य के लिए अपना महान योगदान दिया । हिंदी का यह जागरण काल था । इस काल में हिंदी गद्य के विविध विधाओं का जन्म हुआ ।

'प्रयोजनमूलक हिंदी' के उपर्युक्त सभी रुप उसके विविध क्षेत्र एवं महत्व को ध्वनित करते हैं । साथ ही हिंदी की व्यापक सीमा का भी बोध कराते हैं । 'प्रयोजनमूलक हिंदी' की उपयोगिता अन्य क्षेत्रों में – रक्षा सेवा क्षेत्र, अनुवाद क्षेत्र, सिविल सेवा परीक्षाएँ आदि में निरंतर बढती जा रही है । 'प्रयोजनमूलक हिंदी' के कारण हम ज्ञान प्राप्त करेंगे । हिंदी भाषा का सटीक और समर्पक प्रयोग करने में सक्षम बनेंगे । इसके प्रचार और प्रसार ही हिंदी के साथ देश की सेवा बन जाएगी ।

निष्कर्ष – हिंदी भारत के हृदय की कुंजी है । वह भारत और हर भारतवासी की अस्मिता और सांस्कृतिक परंपरा की वाहिका

है । वह समग्र भारतीय अस्मिता की वाणी है । आज हिंदी केवा साहित्य की भाषा नहीं है, अब उसके प्रयोजन बदल गए हैं । आज 'प्रयोजनमूलक हिंदी' को विशेष महत्व प्राप्त हो गया है । 'प्रयोजनमूलक हिंदी' रोजगारपरक भाषा है जो जीविकोपार्जन के लिए होती है । 'प्रयोजनमूलक हिंदी' में व्याकरण के नियम, भाषा शुद्धता और भाषा संरचना की अपेक्षा व्यावहारिक उपयोगिता को महत्व दिया जाता है । 'प्रयोजनमूलक हिंदी' मनुष्य के दैनिक जीवन में विभिन्न संदर्भों, विषयों और कार्यक्षेत्रों में प्रयुक्त होती है और उसके विशिष्ट प्रयोजन भी होते हैं । प्रयोजनमूलक हिंदी का संप्रेषण अधिक स्पष्ट, सरल, लक्ष्यभेदी और अर्थगर्भित होता है । प्रयोजनमूलक हिंदी अपने क्षेत्र विस्तार के कारण विभिन्न रूपों में प्रयुक्त हो रही है । ये सभी रूप उसके विविध क्षेत्र एवं महत्व को ध्वनित करते हैं । साथ ही हिंदी की व्यापक सीमा का भी बोध कराते हैं ।

संदर्भ :

१. डॉ. सुरेश माहेश्वरी – हिंदी : राष्ट्रभाषा से विश्वभाषा की ओर
विकास प्रकाशन, कानपुर ३११ सी, विश्व बैंक, बर्रा–कानपुर–२०८०२७–१९९८

२. डॉ. माया सिंह, डॉ. सिदेश्वर काश्यम – प्रयोजनमूलक हिंदी के विविध आयाम
जयभारती प्रकाशन, २८५/३६५/मुट्ठीगंज, माया प्रेस रोड, इलाहाबाद–२११००३–१९९७

३. डॉ. भोलानाथ तिवारी – हिंदी भाषा का अन्तर्राष्ट्रीय संदर्भ
पांडुलिपि प्रकाशन ई–११/५ कृष्णनगर, दिल्ली–११००५१–१९८७

४. हिन्दी का प्रसार और विकास – शिक्षा मंत्रालय भारत सरकार – १९६८
पत्र – पत्रिकाएँ – नवभारत टाइम्स – १८ सितंबर २००६, पृष्ठ ९ मुंबई

आधुनिक हिंदी काव्य में मानवीय संवेदना

* **प्रकाश शंकरराव चिकुर्डेकर**

सारांश:

आज हम जिस कविता युग को जी रहे हैं, वह मूलत: १९६० के बाद से प्रारम्भ 'समकालीन कविता' 'ही है। इसी युग में – हासोन्मुख और –हासशील मूल्यों को जाननेवाला कवियों का एक वर्ग उत्पन्न हुआ । कविता का एक नया रूप इन कवियों ने सामने लाया। यह काल सशक्त कविता का दौर था। इस कविता में मानवीय संवेदनाओं को नयी पीढी के रानाकारों ने समृद्‌ा किया। इस दौर में सघन मानवीय संवेदना कविता में उभरी है।

हिंदी काव्य संवेदना के दौर में 'धूमिल' जी अग्रणी रहे हैं। नयी पीढी के रोश ाोशी, उदय प्रकाश,विश्वनाथ प्रसाद तिवारी, मंगलेश डबराल, अरुण कमल, रामदाश मिश्र, केदारनाथ सिंह, चंद्रकांत देवताले, ममता कालिया, गोंद्र सिंह सालंकी, बालस्वरुप राही, भारतभूषण अग्रवाल, वीरेंद्र प्रसाद आदि प्रतिनिधि कवि रहे हैं। इन कवियों की कविताओं में 'मानवीय संवेदना' के विविा आयाम प्रस्तुत हुए हैं।

हिंदी काव्य में अपनी संवेदना को चितारनेवाला हर कवि अपने समय की चिन्ता का संसार और युगबोध को दर्शाता है। वर्तमान मानव जीवन में उत्पन्न खतरों से लड़ने का साहस भी प्रकट करता है। इस काल के कवियों ने आम आदमी को केंद्र में रखकर व्यक्ति के जीवन में उत्पन्न विसंगतियों को संवेदना स्वरुप अभिव्यक्त किया है अत: इस काा का कवि व्यापक परिवर्तन ाहता है। ाब तक यह परिवर्तन व्यापक नहीं होता तब तक हिंदी काव्य अनेक करवटें बदाते और नए–नए नाम परिवर्तनों से निरंतर संवेदना के विविा आयाम प्रस्तुत करता रहेगा।

सांकेतिक शब्द : आधुनिक, मानवीय, परिवर्तन, युगबोध

आज हम जिस कविता युग को जी रहे हैं, वह मूलत: १९६० के बाद से प्रारम्भ 'समकालीन कविता' 'ही है। इसी युग में – हासोन्मुख और –हासशील मूल्यों को जाननेवाला कवियों का एक वर्ग उत्पन्न हुआ । कविता का एक नया रूप इन कवियों ने सामने लाया। यह काल सशक्त कविता का दौर था। इस कविता में मानवीय संवेदनाओं को नयी पीढी के रचनाकारों ने समृद्ध किया। इस दौर में सघन मानवीय संवेदना कविता में उभरी है।

'संवेदना' शब्द की व्युत्पत्ति 'वेदना' शब्द के पूर्व 'सम्' उपसर्ग लगा देने से होती है। 'सम्' का अर्थ होता है– 'सम्यक रुप से, समान रुप से ।' अत: 'संवेदना' का अर्थ है– मन में होनवाला बोध या अनुभव । दूसरा अर्थ है – 'किसी को कष्ट मे देखकर मन में होनेवाला दु:ख' है। वस्तुत: संवेदना से काव्य–संवेदन की यात्रा रचनाशीलता के क्षेत्र में 'पुन:सृजन' के नाम से जानी जाती है।

हिंदी काव्य संवेदना के दौर में 'धूमिल' जी अग्रणी रहे हैं। नयी पीढी के राजेश जोशी, उदय प्रकाश,विश्वनाथ प्रसाद तिवारी, मंगलेश डबराल, अरुण कमल, रामदाश मिश्र, केदारनाथ सिंह, चंद्रकांत देवताले, ममता कालिया, गजेंद्र सिंह सोलंकी, बालस्वरुप राही, भारतभूषण अग्रवाल, वीरेंद्र प्रसाद आदि प्रतिनिधि कवि रहे हैं। इन कवियों की कविताओं में 'मानवीय संवेदना' के विविध आयाम प्रस्तुत हुए हैं।

राजेश जोशी आम जनता के पक्षधर रहे हैं। जीवन का दुख, असफलता और विडम्बना का चित्रण पूरी संवेदना के साथ प्रस्तुत

डॉ. प्रकाश शंकरराव चिकुर्डेकर,
सहयोगी प्राध्यापक एवं शोध निर्देशक, हिंदी विभाग, यशवंतराव चव्हाण वारणा महाविद्यालय,
वारणानगर –४१६११३, जिला – कोल्हापुर, महाराष्ट्र.
E-mail : **prakashchikurdekar@yahoo.com**

करते हैं। छोटा बच्चा बडा हो रहा हैं तब राजेश जोशी की संवेदना जागृत होती है–

''बच्चा बडा हो रहा है
पलंग की पाटी पकड कर
माँ की हथेलियाँ पकडक़र...''१

उदय प्रकाश अपनी कविता में अमानवीय और विषम व्यवसाय का गहन चित्रण करते हैं। उनके 'सुनो कारीगार' और 'अबूतर–कबूतर' इस काल के दो चर्चित काव्य संग्रह रहे हैं। वे 'प्रजातंत्र' बडी खुबी से प्रस्तुत करते हैं । वे लिखते हैं–

''.....बंदूक की नाल से
बोलती है रायसत्ता
कि सुनो मेरी प्यारी प्यारी प्रजा
तुम्हें तन्त्र के भीतर ही
प्रजा होने का हक है।''२

कवि अरुण कमल तो अपने ही आसपास के अराजक, हिंसक जीवन –परीवेश को प्रस्तुत करते हैं। आज मनुष्य का अस्तित्व खतरे में पडा है। 'आदमी' का आदमी पर भरोसा नहीं रहा है। अपनी 'फिर भी' कविता में वे कहते हैं–

''इसलिए उम्मीद है कि
मेरा 'घर मुझे मिलेगा वापस।
उम्मीद है कि जनरल डायर
जिन्दा नहीं बचेगा।''३

'साथ चलते हुए' और 'बेहतर दुनिया के लिए' काव्य–संग्रह के कारण चर्चा में रहे डाक्टर विश्वनाथ प्रसाद तिवारी अपने आस–पडोस में रहते 'घातक परिवेश के विरुद्ध भी आशा रखते हैं–

''हम याद रेखेंगे इस बुरे वक्त को
इस भय को अपराध और आतंक को,
ऐयाशी और आँसू को....
तुम न चाहो तो भी यहै दुनिया बदोगी।'' ४

मंगलेश डबराल की रानाओं में मानवीय संवेदना अनेंक रुपो में व्यक्त हुई। आज मनुष्य अत्यधिक स्वार्थी बना है। शादी के तुरंत बाद ससुराल जाती युवती की संवेदना चित्रित करते हुए वे लिखते हैं–

''लडक़ी ससुराल जा रही है।
माँ–बाप आँसुओं के साथ ढरका रहे हैं,
...इन्हें नहीं पता कि–
अब ससुराल के लिए तिजोरी चाहिए।
वहाँ प्यार नहीं पैसा हँसता हैं।
वहाँ आदमी नहीं
सौदागर बसते हैं।''५

गाँव जीवन की संवेदना चितारनेवाले कवि रामदरश मिश्र की कविता मनुष्य की आत्मघाती बारुदी महत्वकांक्षाओं पर चोट करती है। 'चिडिया', 'फिर–भी', 'जुलस कहाँ जा रहा है?', 'दंगा', 'दस्तक' जैसी अनेक कविताओं में मानवीय संवेदना, पीडा को बार–बार लिखते हैं–

''आवारा पशु सींग उठाये
खेतों को रोंदते 'घूम रहे है।
नदियों के पानी में खुद पहाड.
जहर घोल रहे हैं–
और छटपटा कर मर रही हैं
चिडियों और तितलियों की परछाइयाँ।''[६]

साठोत्तर कविता में केदारनाथ सिंह एक प्रमुख हस्ताक्षर रहे हैं। उनके मतानुसार आज उपभोक्तावाद की दृष्टि में मनुष्य एक निर्जीव वस्तु के रूप में तब्दील हो गया है। मनुष्य की संवेदना वस्तुकृत हो गई है। उसके लिए प्यार जैसी संवेदनात्मक क्रियायें अपना अर्थ खो चुकी है। 'फर्क नहीं पडता' कविता में वे कहते हैं–

''पर सच तो यह कि यहाँ
या कहीं भी फर्क नहीं पडता
तुमने जहाँ लिखा है
प्यार वहाँ लिख दो सडक़
फर्क नहीं पडता।''[७]

आज औद्योगीकरण ने भी मनुष्य की जिंदगी मशीनी बनाई है। मानवीय संवेदना समय की दौड में अप्रासंगिक होती जा रही है। व्यक्ति के मिलने–जुलने, बात करने या अन्य आत्मीय व्यवहारों में आमूल–चूल परिवर्तन आया है। 'मनुष्य' और 'मानवता' की पहचान का प्रयास निरंतर गहराता तथा व्यापक होता जा रहा है। इसने मनुष्य की प्रगति, उसके विवेक ओर चेतना पर दैत्याकार प्रश्न चिह्न खडा कर दिया है। आज का व्यक्ति अपना असली चेहरा खोकर बे–चेहरा हो गया है। 'धूमिल' जी अपनी संवेदना लिखते हैं–

''हाँ, हो सके तो
बगल से गुजरते हुए–
आदमी से कहो।
लो यह तुम्हारा चहरा
यह जुलूस में पीछे गिर पडा था।''[८]

परंपरा से नारी अनेक रूपों में अपना धर्म निभा रही है। नारी के प्रति कवियों की आस्था अत्यंत गहरी है। चंद्रकांत देवताले वैचारिक और सामूहिक, आंतरिक और बाह्य दोनों ही धरातलों पर गतिशील कवि हैं। वे अपनी कविता में नारी के प्रति सहानुभूतिान्य संवेदना प्रस्तुत करते हैं–

''एक औरत को समझने के लिए
हजार साल की लिंदगी चाहिए।
मुझको, क्योंकि औरत सिर्फ
भाप या वसंत नहीं है।
एक सिफनी भी है
समूचे ब्रह्मांड की।''[९]

अपने 'लकड बग्घा हँस रहा है' काव्य–संग्रह में देवताले जी 'औरत' कविता द्वारा नारी व्यथा, आम भारतीय स्त्री की संवेदना को अजागर करते हैं–

''वह औरत, आकाश और पृथ्वी के बीच
कब से कपडे. पीट रही है, ...सबसे
अपना पता पूछ रही हैं।[१०]

आज नारी एक ओर प्रताड़ित है तो दूसरी ओर अपने अस्तित्व की तलाश में है। ममता कालिया की नारी भी अपना दायित्व वहन करती है और पुरुष के द्वारा जब प्रताड़ित होती, है तब नेपथ्य से बाहर निकल कर केंद्र में आती है और बुलंद आवाज में बताती हैं कि वह भी बराबर की मनुष्य है । पुरुष ने कहा–

''... तुम वहीं की वहीं रहीं,
खाँटी 'घरेलू औरत।
तब– ... उसने...''
अपनी डिग्रियां निकाली
उठाया अखबार, किए आवेदन,
हुआ चयन,
आला कुर्सी पर आसीन हुई।'' [११]

ममता कालिया भारतीय नारी की संवेदना को, उसके अस्तित्व को, उसकी आवाज को बुलंद करती हैं।

हिंदी आलोचको ने कवि अशोक वाजपेयी की कविता को एक विशिष्ट स्थान में रख दिया है । कवि 'कम्बा' और 'रोटी' जैसी मनुष्य की बुनियादी आवश्यकता के अभाव में उपजे दारिद्रय का, बुढ़ापा, गरीबी का संवेदनशील मित्र प्रस्तुत करता दिखाई देता है–

''अगर इतने से काम चल जाता
तो मैं लाकर बुला लाता देवदूतों को
'कम्बल' और 'रोटियाँ' बाँटने के लिए।
बैठ जाता पार्क की बेंच पर,
एक अकेले उदास बूढे. की तरह...''[१२]

हिंदी में इसी दरम्याँन 'सहा कविता,' 'विचार कविता का प्रवाह भी बहता रहा। अतीत के गर्भ से वर्तमान प्रश्नों के उत्तर गोंद्र सिंह सोलंकी जैसे कवि, तलाशते रहें। आम आदमी की बुनियादी अपेक्षाएँ और रोजमर्रा की जिन्दगी की विभिन्न मुद्राओं में मानवीय सच्चाई संवेदना के रुप में उभरती हैं–

''जितना बह सको बहो हवा।
दुनिया के इस छोर से उस तक ।
जोडो यदि जोड सको सारी,
दुनिया के लोगों को जाडो।
तोडो यदि तोड. सको मेरा,
अकेलापन तोडो...।'' [१३]

आज का आदमी भीड. में रहते हुए भी अकेला है। संयुक्त परिवार टूट रहे हैं। लोग नौकरी के लिए शहर की ओर भाग रहे हैं वहाँ नौकरी तो मिलती है किंतु वह अपने परिवार से कट जाता है, भीड. मे भी अकेला हो जाता है। साथ–साथ बढ़ती हुई महँगाई, बेरोजगारी भुखमरी के कारण मानव संवेदनाहीन यंत्रवत जीवन जिने के लिए विवश हो रहा है। भारतभूषण अग्रवाल अस्तित्व के तलाश में तड़पते मानव की संवेदना को वाणी देते हुए कहते हैं–

''मकडी के जाल में फँसी, मेरी जिंदगी
टपटा रही है...
... और मकडी, तुम हो,
तुम हो मेरी जिंदगी ।'' [१४]

आज भी लोग बेघर हैं। शहर या नगरों में फुटपाथ, झुग्गी–झोपडी या तंबू ठोंक कर गुजारा करते हैं। अपने घर की कामना लेकर

पीसते–खटते हैं किंतु बेघर ही मर जाते हैं। कवि विनोद दास की कविता 'अधूरा स्वेटर' में घर के सपने पूरा न होने की संवेदना व्यक्त हुई है–

'' तुम फँदा डालकर
जब बुनती हो एक घर
सर्दियाँ बीतती ही चली जाती हैं
और तुम्हारा 'स्वेटर'
कभी पूरा नहीं होता। ''[१५]

वर्तमान जीवन में मनुष्य ही मुनष्य की पहचान भूल गया है। वह निर्जीव पोस्टरों को जितना महत्त्व दे रहा है, अगर उतना ही महत्त्व वह सजीव मनुष्य को देगा तो मनुष्य और मनुष्य के बीच दया, करुणा और परस्पर प्रेमभाव कायम रहेगा। एक–दूसरे के सुख–दु:ख में एकाकार हो जाएगा। लकिन दिन–ब–दिन मुनष्य निर्जीव पोस्टरों की ओर आकर्षित होता जा रहा है। अर्थात आज के मूयहीन जीवन में मनुष्य से अधिक निर्जीव पोस्टरों को महत्त्व है और सजीव मानव की कोई पहचान नहीं।

कवि सर्वेश्वरदयाल सक्सेना अपनी कविता 'पोस्टर' और आदमी' में आक्रोशान्य संवेदना प्रकट करते हुए कहते हैं–

'मैं अपने को, नन्हा–सा, दबा हुआ
विशालकाय बडे़–बडे़ पोस्टरों
के अनुपात में खडा देख रहा हूँ
...लेकिन...आा के जमाने में
आदमी से ज्यादा लोग
पोस्टरों को पहचानते हैं
वे आदमी से बडे़ सत्य हैं।''

वीरेंद्र प्रसाद पहले सैनिक हैं और बाद में कवि वे राष्ट्रीय विचार धारा की आलोचना करते हुए कहते हैं कि भारत अपने दुश्मनों के साथ भी आत्मीय व्यवहार करता है। 'शांती ' तथा 'अहिंसा' का संदेश देनेवाला भारत गीता, कुराण, शास्त्रों के साथ–साथ–शस्त्र की भी पूजा करता है। भारतीय भूमि से प्रेम करनेवाला कवि–मन संवेदनशील हो उठता है–

'' जब भी आजोगे सीमा पर
इस जननी का वीर मिलेगा।
...भारत के बेटों के रहते
कभी नहीं कश्मीर मिलेगा।''[१७]

कवि की मंशा है कि देश अखंड रहे, यहाँ की जनता सुख, अमन–चैन के साथ रहै– इसलिए लिखते हैं–

''ईद का ा१न
शान ईसा की।
मैं शिवालों के गीत गाता हूँ
है अंधेरों की साजिशे तो रहें।
मैं उजालों के गीत गाता हूँ।''[१८]

निष्कर्षत:

हिंदी काव्य में अपनी संवेदना को चितारनेवाला हर कवि अपने समय की चिन्ता का संसार और युगबोध को दर्शाता है। वर्तमान मानव जीवन में उत्पन्न खतरों से लडऩे का साहस भी प्रकट करता है। इस काल के कवियों ने आम आदमी को केंद्र में रखकर व्यक्ति के जाीवन में उत्पन्न विसंगतियों को संवेदना स्वरुप अभिव्यक्त किया है अत: इस काल का कवि व्यापक परिवर्तन चाहता है। तब तक

यह परिवर्तन व्यापक नहीं होता तब तक हिंदी काव्य अनेक करवटें बदाते और नए–नए नाम परिवर्तनों से निरंतर संवेदना के विविध आयाम प्रस्तुत करता रहेगा।

संदर्भ:–

१. एक दिन बोलेंगे पेड–राजेश जोशी, पृ. ४२

२. नया पथ–सं.ओम प्रकाश ग्रेवाल, पृ. ७०

३. फिर भी–अरुण कमल, पृ. ४०

४. दस्तावेज–२६, सं. विश्वनाथ प्रसाद तिवारी, पृ. ४२

५. 'घर का रास्ता–मंगलेश डबराल, पृ. २०

६. जुलस कहाँ जा रहा है? रामदाश मिश्र, पृ.२४

७. प्रतिनिधि कविताएं–सं. परमानंद श्रीवास्तव, पृ.९१

८. संसद से सडक़ तक–धूमिल पृ. ८

९. लउक बग्घा हँस रहा है– चद्रकांत देवताल. पृ. २२

१०. साहित्यालोक– सं. मंडल–शिवाजी विश्वविद्यालय, कोल्हापुर. पृ. ३७–३८

११. आधुनिक काव्याकाश– सं. मंडल शिवाजी विश्वविद्यालय, कोल्हापुर. पृ. ५१.

१२. अगर इतने से–अशोक वाजपेयी, पृ. २२२.

१३. 'ज्ञानगंगा',(हुबळी) – विशेषांक,अक्तूबर–२०११, पृ.२९.

१४. वही, पृ.३५.

१५. वही, पृ.१३५

१६. आधुनिक काव्याकाश– सं. मंडल–शिवाजी विश्वविद्यालय, कोल्हापुर. पृ.१३.

१७. 'ज्ञानगंगा',(हुबळी) – विशेषांक, अक्तूबर–२०११, पृ.९५.

१८. वही।

Use Of RFID Technology In Libraries

* Manohar Ganpati Shinde

Abstract

Today we are living in the information era, where in information play very significant and predominant role in our day today activities. Information explosion, multidisciplinary, interdisciplinary, Information available in different types and formats, change in the user perception has given rise to mythology of the knowledge society, where, Information Technology Presented as new Savior of Mankind.

Now stage has come tradition type of libraries have to automate their services and try to disseminate the information using new technology.

RFID in the library is not a threat if best practices guidelines followed religiously, that it speeds up book borrowing and inventories and frees staff to do more user service tasks. The technology saves money too and quickly gives a return on investment. It is important to educate library staff and library users about RFID technology before implementing a programme, it may be good for librarians to watch developments in RFID.

Keywords :- High-speed Inventorying, reliability, tag collision, user privacy, security, high cost.

1) Introduction:

RFID (Radio Frequency Identification) allows an item, for example a library book, to be tracked and communicated with by radio waves. This technology is similar in concept to a cell phone. RFID is a broad term for technologies that use radio waves to automatically identify people or objects. There are several methods of identification, but the most common is to store a serial number that identifies a person or object, and perhaps other information, on a microchip that is attached to an antenna (the chip and the antenna together is called an RFID transponder or an RFID tag). The antenna enables the chip to transmit the identification information to a reader. The reader converts the radio waves reflected back from the RFID tag into digital information that can then be passed on to computers that can make use of it.

This Technology has changed our daily life and it has become much faster, simpler and efficient. Over the last two decodes the libraries have witnessed impact of information technology that has been affecting structure and services of the library to a great extent.

2) RFID History and Development

RIFD Technology invented in 1969 and Patented in 1973, first it was in Harsh Industrial Environment in 1980 and its standards Presented in 2001. It is one of the latest technology in the field of library. RFID is fundamentally based on the study of the Electromagnetic waves, which was rooted in the 19th century work of pioneer such as Michael Faraday, James Clerk Maxell and Marconi. It is one of the emerging Technology. It is Automatic Identification Technology (Auto-ID). Bill gates described as a revolutionary Technology of 21st century. RFID is a combination of Radio-frequency-Technology and Microchip Technology. It is very fastest, easiest and most efficient way to track, locate and manage library materials or any objects. This Technology is similar in the concept of cell phone.

Dr. Manohar Ganpati Shinde
Librarian and H.O.D.
Yashwantrao Chavan Warana Mahavidyalaya
Warananagar-416113, Tal. Panhala, Dist. Kolhapur
E-mail : manohargshinde@gmail.com

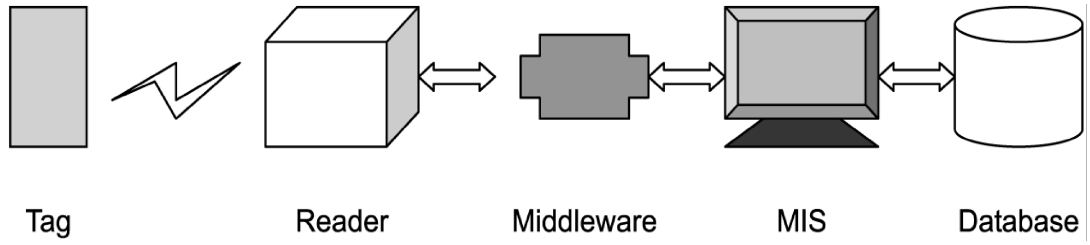
3) RFID for Libraries:

RFID Can be used library circulation operations and theft detection systems. RFID based systems move beyond security to become tracking systems that combine security with more efficient tracking of materials throughout the library, including easier and faster charge and discharge, inventorying, and materials handling.

RFID is a combination of radio-frequency-based technology and microchip technology. The information contained on microchips in tags affixed to library materials is read using radio frequency technology, regardless of item orientation or alignment (z'.e the technology does not require line-of-sight or a fixed plane to read tags as do traditional theft detection systems). The RFID gates at the library exit(s) can be as wide as four feet because the tags can be read at a distance of up to two feet by each of two parallel exist gate sensors.[1]

4) How RFID Works

RFID Technology basically uses Radio waves to automatically identify items or objects. Microchip that contain in the tag store the information about that object product which is attached to the antenna, the antenna and Chip together is called RFID Transponder or RFID tag. All the tags used in libraries are "passive", all these tags are powered by the Readers or sensor exits rather than from a battery within the tag. These tags are generally covered with in plastic paper placed in the book wrapper. The reader read the information from the tags and then converts into digital information that can be than passed to computer and than to RFID server.



5) Components of an RFID system

A comprehensive RFID system has four components:

1. RFID tags that are electronically programmed with unique information
2. Readers or sensor to query the tags
3. Antenna
4. Server on which the software that interfaces with the integrated library software is loaded.[2]

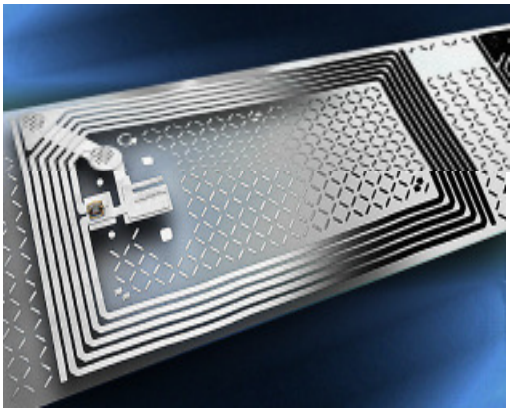
5.1) RFID Tags:

The heart of system is the RFID tag, which can be fixed a book's back cover or directly onto CDs and videos. This tag is equipped with a programmable chip and an antenna. There are three types of tags: "read only", "WROM," and "read/write."

The heart of the RFID system I RFID tag. It is one the most important link in any RFID system. It has the ability to store information relating to the specific item to which they are attached, data within a tag may provide identification for an item. RFID tags collect the energy/power from the electromagnetic field or Radio Frequency (RF) field which is created by readers or sensor gates, therefore they do not need a battery. When energized by a radio signal from a fixed position reader or handheld scanner, the tag returns the stored information in order that the item to which it is attached can be easily located.

RFID tags are available in different size and shapes according to suit the applications and specifically designed to be affixed into library media, including books, CDS, DVDs and tapes. It is thin, flexible and thus can be laminated between paper and plastic with special method to attach to books, patron is totally unaware about the gag.

Most RFID tags contain at least two parts: 1) one is Microchip (programmable) which storing and processing information. 2) The second one is engraved antenna which is receiving and transmitting the radio signal.



5.2) Readers/Sensor :

RFID readers or receivers are composed of radio frequency module, a control unit and an antenna to interrogate electronic tags via radios frequency (RF) communication.

Reader are the link between RFID tags and the RFID server (PC). Readers are very in size and shapes from portable handheld devices to fixed devises positioned at circulation desk or library entrance gate. RFID readers are composed of a radio frequency module, a control unit and an antenna to interrogate electronic tags. It send information in two directions, it read information from tag and send the information to server or it read information from server and send it to tags (write mode)

Different types RFID readers:

- Fixed readers – Entry/Exit, Conveyer etc.
- Mobile readers – handheld readers, etc.
- Dual Barcode and RFID readers.

Sensor Gate

Handheld Reader

Readers in RFID library are used in the following ways:

- Conversion station : where library data is written to tag
- Staff workstation at circulation : used to charge and discharge library materials
- Self check-out station : used to check out library materials without staff assistance
- Self check-in station : used to check in library materials without staff assistance
- Exit sensors : to verify that all material leaving the library has been checked out
- Book-drop reader: used to automatically discharge library materials and reactivate security
- Sorter and conveyor : automated system for returning material to proper area of library
- Hand-held reader : used for inventorying and verifying that material is shelved correctly

5.3) Antenna:

The antenna produces radio signals to activate the tag and read and write data to it. Antennas are the channels between the tag and the reader, which controls the system's data acquisitions and communication. The electromagnetic field produced by an antenna can be constantly present when multiple tags are accepted continually. Antennas can be built into a doorframe to receive tag data from person's things passing through the door.

5.4) Server:

The server is the heart of some comprehensive RFID systems. It is the communications gateway among the various components . it receives the information from one or more of the readers and exchanges information with the circulation database.

It receives the information from one or more of the readers and exchanges information with the circulation database. Its software included the SIP/SIP2 (session Initiation or standard Interchange Protocol) necessary to interface it with the integrated library software but no library vendor has yet fully implemented NCIP (National circulation Interchange Protocol) approved by NISO (National Information Standards Organization)

6) Optional Components :

Optional RFID system includes the following three component:

6.1 RFID Label Printer

6.2 Handheld Reader

6.3 External Book Return

6.4 RFID Label Printer

An RFID printer is used to the print the labels with an individual barcode, library logo, etc . when the print is applied, it simultaneously programmes the data into the chip. After this process, the RFID label is taken from the printer and applied to the book.[3]

7) Keys Features of RFID in Libraries :

The reliability of the system, its ease of operation, and the flexibility of tagging all kinds of media easily, are important criteria in choosing an RFID system. The main aim for today's libraries in adopting RFID is the need to increases efficiency and reduce cost.

7.1) Self-charging/Discharging:

The use of RFID reduces the amount of time required to perform circulation operations. This technology helps librarians eliminate valuable staff time spent scanning barcodes while checking out and checking in borrowed items.

7.2) Reliability:

The readers are highly reliable. Several vendors of RFID library systems claim an almost 100 percent detection rate using RFID tags. Some RFID systems have an interface between the exit sensors and the circulation software to identify the items moving out of the library. Were a library user to leave the library and not be caught, the library would at least know what had been stolen. If the user card also has an RFID tags, the library will also be able to determine who removed the items without properly charging them.

7.3) High-speed Inventorying:

RFID system is their ability to scan books on the shelves without tipping them out or removing them. A hand-held inventory reader can be moved rapidly across a shelf of books to read all of the unique identification information . Using wireless technology, it is possible not only to update the inventory, but also to identify items, which are out of proper order.

7.4) Automated Materials Handling :

RFID technology is automated materials handling. This includes conveyor and sorting systems that can move library materials and sort them by category into separate bins or onto separate carts. This significantly reduces the amount of staff time required to ready materials for re-shelving.

7.5) Tag Life:

RFID tags last longer than barcodes because the technology does not require line-of-sight. Most RFID vendors claim a minimum of 100,000 transactions before a tag may need to be replaced[4].

8) Use of RFID in Libraries

RFID Technology is the most ideal place for library for tracking of bibliographical information of library holdings. It can be used for various functions in the libraries. It identify the documents in the library with the help of radio waves and more useful than the barcode. It can store up to four Kbytes of data. It can provide cost-effective solutions to many of the key issues facing most of the libraries.

- Annual stock verification
- Rapid checking that books are shelved in the correct area
- Searching for specific items.
- Self return of items and sorting for shelving
- More security to the library materials
- Library memberships cards.
- Efficient document tracking.
- Easier and faster charging and discharging of documents
- Security of materials
- Inventor management
- Stock verification
- Shelf handling
- Weeding the collection
- Collection development
- Locating missing items.
- Cleaning up the collection

- Utilization rate of journals
- Seeking and positioning
- Frees staff to provide more value – added services to patrons.

9) Best practices for Libraries :

As libraries are implementing RFID Systems, it is important to develop best practices guidelines to utilize the technology in best way and to keep the privacy concern away. The following may be the best practices guidelines for library RFID use.

9.1 The Library should be open about its use of RFID technology including providing publicity available documents stating the rational for using RFID, objectives of its use and associated policies and procedure and who to contact with questions.

9.2 Sign should be pasted at facilities using RFID., The sign should inform the public that RFID technology is in use, the types of usage and a statement of protection of privacy and how this technology differs from other information collection methods.

9.3 Only authorized personnel should have access to the RFID system.

9.4 No personal information should be stored on the RFID tag.

9.5 Information describing the tagged item should be encrypted on the tag even if the data is limited to a serial number.

9.6 No static information should be contained on the tag (bar code, manufacturer number) that can be read by unauthorized readers

9.7 All communication between tag and reader should be encrypted via a unique encryption key.

9.8 All RFID readers in the library should be clearly marked.

9.9 ISO 18000 mode-2 tags should be used rather than ISO 15693.[6]

10) Recent Developments :

Recent developments in hardware and software for RFID systems have increased the potential of this technology in library automation and security . "Today, the one important result for libraries is the ability to use non-proprietary systems, now that the new generation of RFID[7]

11) Advantages of RFID

11.1 Capability for multiple applications.

11.2 Provides full autonomy to users in library transactions.

11.3 Improved users satisfaction substantially.

11.4 Update the database in real time environment.

11.5 Faster circulation transactions.

11.6 High-speed inventory system.

11.7 Automated identification of materials.

11.8 Better than barcode.

11.9 User information.

11.10 Sorting of documents easily.

12) Disadvantage of RFID Systems:

12.1) High cost

12.2) Accessibility to compromise.

12.3) Chances of Removal of Exposed Tags

12.4) Exit gate sensor (Reader) problems

12.5) Reader collision

12.6) Lack of standard[5]

12.7) Frequency blocking

12.8) User Privacy concerns

13) Conclusion:

RFID is emerging technology of the 21st century. It promises to change our World. It has capability of making our personal and our work lives in the library more convenient however new technology comes at a cot in order to justify those cost. Cost is not only criteria, information is most precious, we have to preserve it properly for the fellow being. RFID Technology is the most ideal place for library. RFID tag may be more expensive than barcode labels. But they have many advantages over barcode labels. Therefore RFID could be more cost effective provided it is used in the right manner and for the right application.

RFID system may be a comprehensive system that addresses both the security and materials tracking needs of a library. While library RFID systems have a great deal in common with one another, including the use of high frequency passive , read-write tags, lack of a standard and compatibility of tags produced by different vendors is a major problem in implementation of RFID. RFID products are currently available using the new standard. Both cost and equipment may make RFID prohibitive in developing countries at this time.

Reference

1. FAQRFID Journal (Online version 2004) Retrieved fromwww.rfidiournal.com/article /articleview/207
2. BOSS.R.W.PLA Tech Notes (may 14, 2004) RFID technology for libraries. Retrieved from www.ala.aorg/ala/pla/plapubs/technotes/rfidtechnology.htm
3. ALEFELD, G and J Herzberger : Introduction to Interval computations, New York, Academic press ; 1997
4. Singh Ram Shobhit : Encyclopedia of library Science Today; New Delhi ,Anmol Publications Pvt.Ltd;2008
5. Amoroso, E : Fundamentals of computer security Technology Englewood Cliff; Prentice Hall; 1994
6. Berkeley Public Library (n.d) berkeley public Library: Best practices for RFID technology Retrieved from Berkeley public library.org/BESTPRAC.pdf.
7. Harvey John F & Carroll, Frances Leverne : Internationalizing Library and Information Science Education; Connecticut; Greenwood press; 1987

Catalytic Deoximation over Supported Zirconium Oxide Nanoparticles Catalysts

* B. S. Shirke, H. M. Shinde and K. M. Garadkar

Abstract

The zirconia nanoparticles were synthesized by microwave assisted sol-gel method. The synthesized material were characterized by XRD and TEM techniques. The synthesized ZrO_2 nanoparticles were tested for the regeneration of ketone from oxime as a catalyst and that was confirmed by TLC, FT-IR and NMR.

Keywords ZrO_2 , Nanoparticles , XRD, TEM, Catalysis, Oxime, Ketone

1 Introduction

Zirconium Oxide have been widely used for various applications such as semiconductor in dye-sensitised solar cell, catalysts, fuel cells, resistors, gas sensors, transparent optical device, optical coating etc [1-2]. It is also interesting as a ceramic material with wide band gap transition metal oxide with useful mechanical, thermal, optical and electrical properties [3-7]. Conventional method for the preparation of the oxide is normally ceramic route,prepration through sol-gel route has many adventages, like good homogeneity, less number of process steps, easy for remote operation, low sintering temperature etc [8-10]. In addition to that microwave-assisted synthesis is a new route to produce inorganic compounds because microwave heating is in situ mode of energy conversion very attractive for chemist. Microwave device is able to produce rapid bulk heating due to strong thermal gradients induced by microwave heating, strong stirring occurs for liquid leading to thermal uniformity of forced hydrolysis and very fast heating rate [11-15].

Most of the catalytic supports require a combination of high surface area and good thermal stability.Among the potentially interesting solids, zirconia has attracted considerable attention not only for its remarkable properties in the ceramics but also its potential use as catalyst support [16-18]. Oximes play an important role as protecting and selectively activating á-merhylene groups in synthetic organic chemistry.Therefore there has been a continued intrest in the development of procedure for the regeneration of carbonyls from the corresponding oxime [19-20]. In this paper the attempt is made to prepare the ZrO_2 nanoparticles and its application for the regeneration ketone from oxime.

2 Experimental details

2.1 Materials and measurements

Zirconium oxychloride, propylene glycol, aqueous ammonia were of analytical grade. Doubled distilled water was used in all experiments. The X-Ray powder diffraction of the powder samples were measured on D8 Advance X-Ray Diffractometer (Bruker, Germany by using monochromatic Cu Ká radiation). The powder samples were scanned in the range of 2è from 10-80° with the speed of 1.5°/min. TEM study of the powder sample was carried out by using model Philips CM 12 transmission electron microscope (IIT-Madras). The FTIR spectrum was recorded on Perkin Elmer-USA in the range of wavenumber from 4000-400 cm^{-1}. The NMR spectrum was recorded on FT NMR BRUKER AVANCE 300 MHz.

B. S. Shirke [1]
Material Science Laboratory, Department of Chemistry, Y.C.Warana Mahavidyalaya, Warananagar - 416 113.
H. M. Shinde [2] **and K. M. Garadkar** [3]
Nanomaterial Research Laboratory, Department of Chemistry,
Shivaji University, Kolhapur – 416 008.
Corresponding Author : E-mail: bss_chemistry@yahoo.com

2.2 Preparation of the catalyst

The ZrO_2 nanoparticles were synthesized by the hydrolysis of Zr(IV) salts in aqueous-alcohol solution. An initial aqueous-alcohol solution was prepared from distilled water and propylene glycol. This solution was mixed with aqueous solution of zirconium oxychloride ($ZrOCl_2.8H_2O$) in ratio such that the zirconium concentration was 0.1M and the alcohol to water ratio was 1:1. The special arrangement was made to add dropwise aqueous ammonia (0.1ml / min.) with constant stirring till the pH of solution becomes 8. After complete precipitation, the hydroxide was washed with distilled water until chloride ions were not detected by $AgNO_3$ solution.Then the hydroxide in a glass beaker was placed in a micro-wave oven (in put power 600W) about 15 minutes with on off cycle.The dried precipitate was grinded by using agate pestle mortar and annealed in a muffle furnace at 400°C for 3h.The Phase purity and the degree of crystallinity of the resulting ZrO_2 samples were monitored by XRD. analysis.

3.Results and discussion

3.1 XRD and TEM analysis of ZrO_2 nanoparticles.

Fig.1 shows the XRD pattern of ZrO_2 nanoparticles within the 2è range of 10 to 80°.XRD of ZrO_2 annealed at 400°C for 3h in air exhibited its characteristic diffraction peaks of tetragonal and monoclinic.The determined characteristic 2è values and hkl planes corresponding to monoclinic-ZrO_2 were at 35.39°(200),63.08°(222) respectively (JCPDS 36-0420) while, the determined characteristic 2è values and hkl planes corresponding to tetragonal-ZrO_2 were at 30.35°(111), 50.49°(220) and 60.40° (311), respectively (JCPDS 17-0923) [8]. The particle size of ZrO_2 powder were calculated by using Scherrer's relation , t = 0.9ë / âcos è. Where, ë-wavelength of X-ray in ú, â-full width at half maximum in radian. The average particle size of ZrO_2 nanoparticles is found to be 25 nm.

Fig.2 shows the TEM photograph of ZrO_2 nanoparticles which is calcined at 400°C respectively. From the figure 2, it is clear that, the particles size is found to be ~25 nm with spherical and narrow size distribution. The value of particles size observed from TEM results were in good agreement with the XRD results. It reveals that the microwave hydrolysis makes it possible to obtain particles of predominantly spherical shape, with a narrow size distribution.

3.2 Catalytic deoximation over supported zirconium oxide nanoparticles catalysts

The oxidation of benzophenone oxime was carried out at 353 K in presence of the ZrO_2 catalyst, ethyl acetate as a solvent and H_2O_2 as the oxidant. The liquid phase reaction was carried out in 25 ml round bottom flask equipped with a reflux condenser.In catalytic oxidation reaction,oxime (10 mmol), H_2O_2 (20 mmol) along with catalyst (1% by wt. of the substrate) and the content were heated in pre-heated oil bath at 353 K. The product benzophenone were analysed by TLC, FT-IR and NMR. TLC analysis indicated the formation of only one product of benzophenone. FT-IR and NMR analysis showed that the oxime was converted into ketone. Under these conditions, 95% yield of benzophenone was obtained in 4 h.

3.3 FT-IR and NMR spectrum

The Frourier transformed infrared spectroscopy of product is shown in Fig.3. The peaks at 946.9 and 1635.4 cm^{-1} were assigned to the flexural vibration of C-H bond and C=C bond respectively. The important peak at close to 1700 cm^{-1} of the carbonyl group was observed. NMR spectrum of the product is shown in Fig.4. The NMR spectrum for benzophenone is clears ä7.52 - 7.71 (m, Ar.-H) ä7.52-7.71 (m, Ar.-H),ä 2.52 (s, CH_3). All these data demonstrated that the product were benzophenone.

4 Conclusion

The ZrO_2 nanoparticles prepared by simple microwave assisted method. The XRD patern shows the ZrO_2 nanoparticles exists in both the phases of tetragonal and monoclinic. The ZrO_2 catalyst is prepared from inexpensive precursors and effective for the regeneration of ketone from oxime. It is found to be very effective with reference to % yield of product and required time duration of the reaction.

References

1. C.Flego, L.Carluccio, Catalysis Communication, 2, 2001, 43.
2. K.M.Garadkar, B.S.Shirke, Y.B.Patil and D.R.Patil, Sensors & Transducers Journal, 110, 2009, 17.
3. K.Sureshkumar, T.Mathews, J Alloys Compounds, 391, 2005, 177.
4. E.V.Frolova, Material Science and Engineering C, 23, 2003, 1093.
5. V.G.Zavodinsky, A.N.Chibisov, J Physics: Conference Series, 29, 2006, 173.
6. B.S.Shirke, A.A. Patil, P.P.Hankare, K.M.Garadkar, J. Material Science: Matererial in Electronics, 22, 2011, 200.
7. K.M.Garadkar, B. S. Shirke, P. P. Hankare and D. R. Patil, Sensor Letters, 9, 2011, 526.
8. C.Wang, A.Geng, Y.Guo, S.Jiang, X.Qu, L.Li, J Colloide and Interface Science 301, 2006, 236.
9. B.S.Shirke, P.V.Korake, P.P.Hankare, S.R.Bamane, K.M.Garadkar, J. Material Science: Matererial in Electronics, 22, 2011, 821.
10. D.Stuerga, M.Delmotte, Microwave in Organic Synthesis, Wiley-VCH, 2003.
11. Y.T. Moon, H.K. Park, D.K. Kim, C.H. Kim, J. Am. Ceram. Soc, 78 1995, 2020.
12. C.M. Woundenberg, W.F.C. Sagar, N.G.M. Sibelt, H. Verweij, Solid State Ionics 13, 2001, 514.
13. J.Wang, S.Ee, S.C.Ng, C.H.Chew, L.M.Gan, Mater Lett, 30, 1997, 119.
14. X.B.Chen, S.S.Mao, Chem Rev, 107, 2007, 2891.
15. G.Shen, J.H.Cho, J.K. Yoo, G.C.Yi, C.J.Lee, J Phys.Chem.B, 109, 2005, 5491.
16. F.Zhang, S.Yang, H.Chen, X.Yu, Ceramics International, 30, 2004, 997.
17. M.Maczka, E.T.G.Lutz, H.J.Verbeck, K.Oskam, A. Meijerink, J. Hanuza, J. Stuivinga, J. Phys Chem Solids, 60, 1999, 1909.
18. S.Pavasupree, Y.Suzuki, S.Pivsa-art, S.Yoshiawa, Ceramics International, 73, 2004, 525.
19. P.P.Goswami, P.K.Chowdhury, Indian Journal Chem Sec B:Org ChemIncl Med Chem, 40, 2001, 157.
20. W.Chrisman, M.J.Blankinship, B.Taylor, C.E. Harris, Tetrahedron Lett., 42, 2001, 4775.

Figures

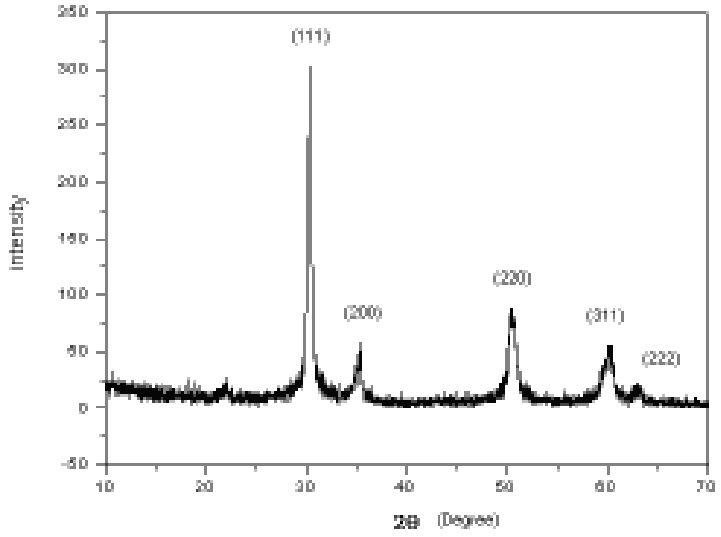


Fig. 1 X-ray Diffraction Pattern of ZrO_2 Nanoparticles.

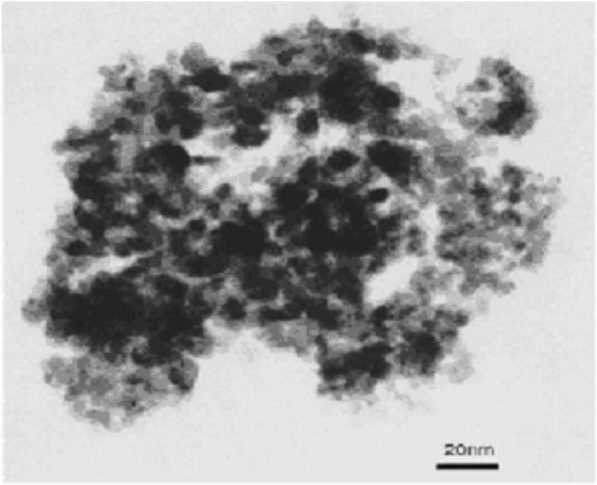


Fig. 2 TEM image of the ZrO_2 nanoparticles annealed at 400°C.

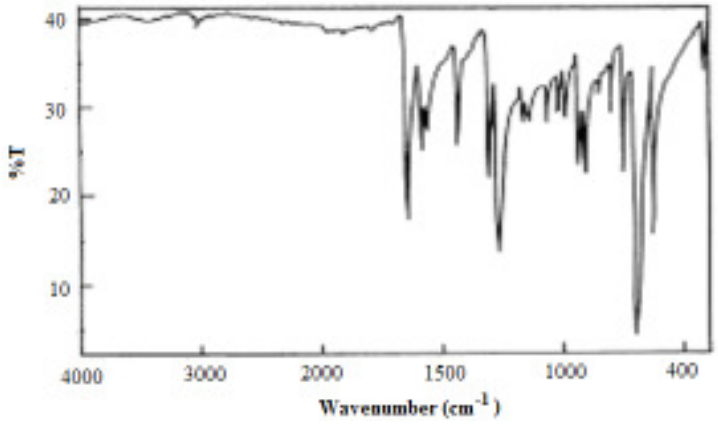


Fig. 3 FT-IR spectrum of benzophenone.

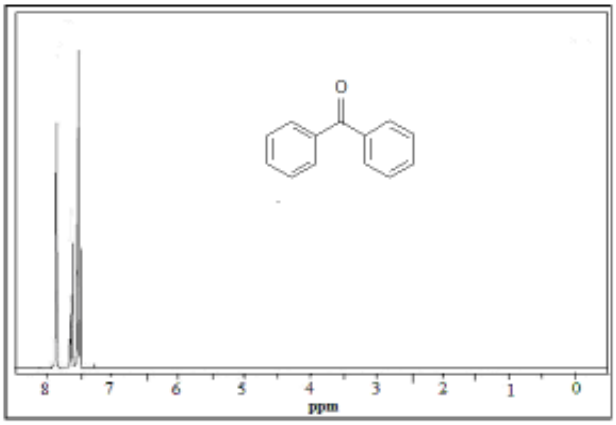


Fig. 4 ^{1}H-NMR spectrum of benzophenone

Bench Marking Research In Applied Sciences and Humanities

ABSTRACT

The present paper tries to focus on Bench Marking in Applied Sciences and Humanities. It accounts the meaning and nature of Bench Marking. Research in any field of study represent relevant, ethical, target oriented, effective, reliable, honest work carried out by dedicated, motivated researcher in his/her research area of interest with special emphasis on concept building and capacity building. It further considers serious obstacles such as the mushrooming of private universities, ill planned growth of higher education institutions, influx of researchers engaged in fulfilling personal aspiration in the path of innovative research. It lay emphasis on innovative researches carried out in institutions of national importance in comparison with these universities.

Bench marking / land mark research is the need of time. Academicians, scientists, researchers innovators should concentrate more on carrying out innovative research for probing societal problems and providing solutions to them and publish it either in the form of research paper in peer reviewed, National/International Journal with high impact factor or in the form of a patent. Administrators should cultivate humanitarian approach to explore fullest academic potential of its employee and transform institutions with IPR protected with their vision. The present paper concludes the qualities that researcher and administrator should possess/cultivate in the context of Bench Marking Research.

Keywords- Research, Innovative Research, Bench Marking, Impact Factor, Citation Index

INTRODUCTION

The Word "Research" is being diluted by many Researchers working in various sectors for individual aspirations rather than fulfillment of societal problems. As such the word RESEARCH signify,

R - Relevance

E - Ethical

S - Specific (target oriented)

E - Efficiency (Effectiveness)

A - Aptitude

R - Reliable

C - Concept Building / Capacity Building

H - Honest, Sincere, dedicated efforts.

The relevance, reliability, periodicity, honesty and capacity building are important attributes, which a dedicated researcher should strive for. It has been generally approved that in Research bench marking is a process in which a Researcher compares his / her products/methods/solutions with those of the most successful researches in its field in order to improve its own performance.

D. N. Bhosale[1], B. M. Ladgaonkar [2], S. J. Lade [3]

Department of Physics, Department of English, Department of Physics, Y. C.Warana Mahavidyalaya, Warahanagar-416113 (M.S.)

E-mail: dr.d_n_bhosale@yahoo.com.in

HYPOTHESIS

Bench Marking /Land Mark Research is not possible in the present circumstances in universities with some exceptions.

FACTS

Dr. A.P.J Abdul Kalam in his historic document "Millennium Vision 2020" has dreamt India as a developing country aspiring itself to transform into a developed country by 2020. He has dreamt this transformation from developing to developed country with an optimistic view of harnessing youth energy, whose average age around 2020 will be 29. The 12th Five year plan too aspires for "Faster, sustainable and more inclusive growth". The achievement of these objectives demand serious, honest, target oriented, relentless efforts in carrying out innovative researches by Researchers, Innovators, and Academicians engaged in Higher Education Institutions, CSIR Laboratories as well as Universities and its affiliated colleges. Harish Padh (2013) has quoted that University / College should have a Knowledge Manager and establish its own Intellectual property Rights (IPR) cell to incorporate innovations and provide forum to its innovators. The generation of Intellectual Property Right (IPR) protected knowledge and raising significant revenues from such an asset should be utmost important task of any University/ Institution/National Laboratories. National chemical Laboratory, Pune - A Premium CSIR laboratory has set itself as Role Model National Laboratory engaged in Innovative Researches.

There are many universities who have multidimensional functioning of which teaching (Knowledge dissemination) and Research (Knowledge creation /knowledge asset) are of utmost importance. Universities should strive for the creation of knowledge based society and country's economy arising out of such a Knowledge asset. A.P.J. Abdul Kalam (2012) has quoted that a good teaching emanates from Research. The teachers love for research and their experience in Research are vital for growth of Institution/University. Any University/Institution is being adjudged by the Research cycle it accomplishes. This itself set in regenerative cycle of excellence. Many Universities/University department in Higher Education are not having adequate experimental facilities/techniques required to bring about the landmark research. The Institutions of premium importance such as IIT's, IISc, IISER's have adequate experimental facilities, trained technicians, knowledgeable and well versed, versatile, eminent academicians which are mandatory for carrying out landmark research.

T.V. Ramkrishanan (2010) has pointed out that peaks of research arise of an extensive base of quality Higher Education conducted in potentially outstanding and well equipped Institutions. Such a support leads to the creation of a large body of highly educated and well trained contributors to knowledge economy. V.H. Mulimani (2010) has pointed out that even a highly deserving person fails to produce results, if appropriate infrastructure and stimulating academic atmosphere is not available, hence to get best out of faculty and to evolve larger section in academic, it is necessary to gear up our Higher Education Institutions to develop a mechanism for acquisition, maintenance and optimal use equitable use of sophisticated instruments.

FINDINGS

Incubations of ideas more over innovative ideas and its appropriate nourishment is possible only when Institutional climate is conducive. The knowledgeable and research motivated faculty is available to researcher round the clock for providing guidance and cooperation to the researcher.

The sixth pay commission has offered a decent salary structure to the teachers engaged in teaching in Higher Education sector. However, with the implementation of sixth pay commission, an individual is supposed to fulfill certain norms, criteria's, guidelines laid down by U.G.C both at the time of recruitment as well as during placements at various stages. These guidelines are very good in bringing, about academic enrichment, as well as improving quality of individuals in Higher Education These guidelines demand active involvement of teachers, young researchers in participating and presenting their research work at National International Conferences, symposia, Workshops. This active involvement offer Knowledge sharing, getting acquaintance with the ways and means of knowledge generation, knowledge asset, forum for collaboration, immediate contacts with the experts in the field, opportunities

and avenues. In case of IIT's, IISc, IISER's conducive research environment knowledgeable well versed faculty, dedicated/ motivated researcher are engaged in pains taking efforts to bring about innovative researches. This type of conducive Research environment is also prevailing in some of the top universities such as Punjab University, Delhi University, Jawaharlal Nehru University, Banaras Hindu University, Tata Institute Fundamental Research and so on.

These guidelines however excellent in its academic sense has set a threatening environment amongst teachers in colleges / University, since they were solely busy in knowledge dissemination rather than knowledge creation. The guidelines of sixth pay commission has forced the teachers in Higher Education to have serious thinking about the ways in which they were and are functioning till date. This resulted in a race to publish so called "Research Article" in so called "Research Journal" This resulted in to involvement of Publishers of Journal in pursuing formalities to get ISSN number to the Journal, even with having inadequate number of knowledgeable referees, inappropriate peer reviewing system, inefficient/insufficient machinery to check plagiarism / duplication of research work that has been submitted for publishing purpose. The teachers in Higher Education sector are trying to publish their Research articles, Papers in such Journals, which they may have carried out probably some time or may be of hypothetical nature and in extreme case even duplicated. The research work published in this manner neither contributes to the knowledge quantum of the subject nor in addressing societal issues/ problems.

Mushrooming of private Universities is a matter of serious concern. Private Universities are normally famous for their ill planned enrolment, financial transactions. Besides, they offer even highest degree such as Doctoral degrees without appropriate check pertaining to plagiarism/duplications of research; about the research volumes they are publishing/editing. Every University/Institution should have efficient machinery to check plagiarism. This should be mandatory to all Universities (U.G.C, Deemed, Private, Section 3 f). Because of scarcity of such machinery for monitoring plagiarism in research, the research output has neither relevance nor capacity to address the social issues. The Doctoral Degrees obtained in this manner are incapable of enlightening path of such an individual and nourishment of academic value despite of holding Doctorate degree before his/her name.

INDEXES FOR RESEARCH ASSESSMENT

These issues led academicians to become introvert and offer criteria's for judging QUALITY of research work that is to be published.

A stage has been reached pertaining to serious thinking about quality of research work carried by researchers, quality of Journal, quality of Department Institution and so on. Out of which Impact Factor, Citation index and h-index seems to be most useful and demanded as far as Quality of Research Work, Quality of Researcher, Quality of Institutions in which he/she is carrying out the Research work. A.K. Dhiman (2012) have given a detailed discussion about the indices of assessment of the research, quality of Journal viz. Journal Impact. Factor (LF), h-index, g-index9 a-index, r-index, ar-index and so on.

JOURNAL IMPACT FACTOR / IMPACT FACTOR (I.F)

Impact Factor of a Research Journal in which a Research article/ paper has been published is a criteria used to elucidate the quality of research, its societal impact, its necessity for other researchers working in the field or allied disciplines, choice of a Journal for publication of his/her research findings, scope and limitation of journal.

Impact Factor has been developed by Eugene Garfield (2004). Impact factor of a Journal is the ratio n/m where

n - No. of articles published in 2012, 2013 were cited in various

Journals in the world (indexed Journals) during year 2014

m- Total no. of citable articles published in Journals in 2013 and 2014.

The Impact Factor of a Journal in 2013 is known in 2014, since the number of articles in earlier two years are up to the end of December 2013. A.K. Indrayan (2012) has recently emphasized the utility of Impact Factor of a Research Journal in scientific research. I.F.is intended to measure the Impact of the published article/ paper on scientists/ researchers, which is determined through the number of times this paper has been cited by other paper (Fig.1). These citations appear in the form of references, made by other teachers/ scientists in their publications in the various Journals of the world along with same Journals.

I.F. are calculated yearly for those Journals that are indexed (Science Citation Index) and included in Thomson Reuters Journal Citation Reports (JCR)

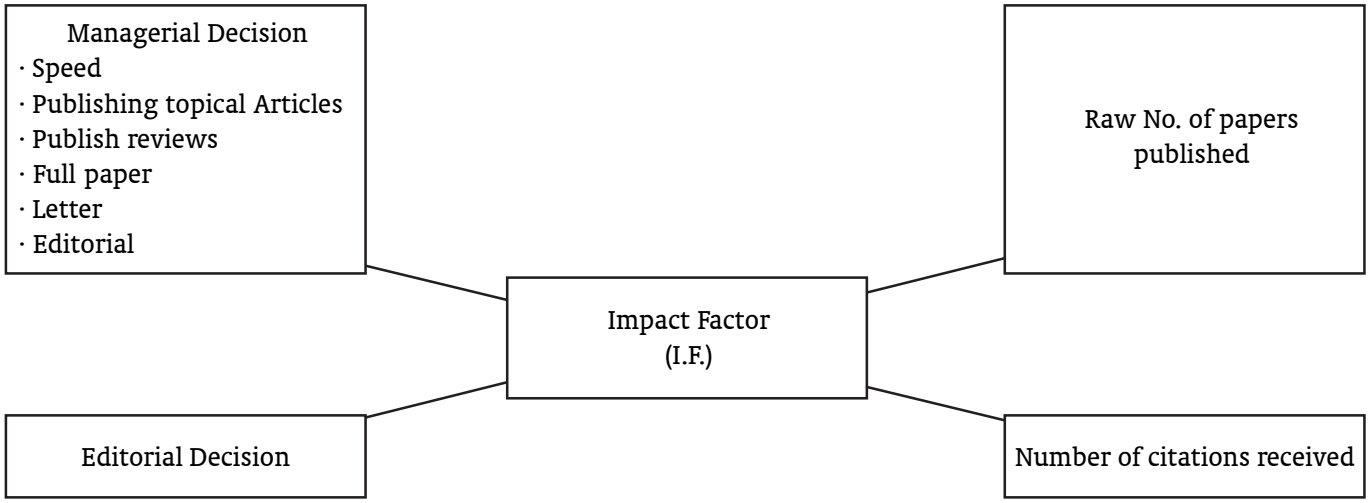


Fig 1. Impact Factor (I.F.) of a Research Journal

These indices such as Journal Impact Factor, Citation Index and h-Index are mainly for judging qualities of scientific research; however no such rigid indices are in practice to judge research quality of researchers engaged in humanities.

Table 1. Different Indices for Assessment of Research

Name of the Factor/ Index	Developed by and in the year	Formula	Useful for	Advantage	Disadvantage
Impact Factor	Eugene Garfield (1992)	No.of citations in year 3 of articles Impact Published in preceding Factor= year land2 / Total no. of citable Articles in year 1 and year 2	Achieving Academic Performance of Individual for the purpose of selection and promotion	Accessing status of a Journal	May not be a perfect Indicator of Quality of journal Always Underestimates – Most cited Articles Exaggerate the no. of Citations of majority of Articles
g-index	Egge (2006)	g-index= highest rank such that g paper have together $(g+1)^2$ paper	Gives more Importance To most cited Papers of author	Fairer for selective Scientists	Different collection of all citation and Documents of Scientists
Hg-index	Alonso et.al (2010)	hi-index = geometric mean of indices		Takes into account cites of highly cited	
m-index	Bornmann and Danniel (2007)	Ewing and Taylor (2009) def^n m-index= h-index / no.of years since his/her first paper	For both senior and junior Researchers		

m-index	Bornmann and Danniel (2007)	Ewing and Taylor (2009) def^{n} m-index= h-index / no.of years since his/her first paper	For both senior and junior Researchers		
Name of the Factor/ Index	Developed by and in the year	Formula	Useful for	Advantage	Disadvantage
a-index	Rousseau (2006)	a-index = Average no. of citations of papers in Hirsch score			Calculation of only papers that have Hirsch score
r-index	Jin et.al. (2007)	r-index = $\sqrt{\text{sun of citations in Hirsch score}}$		Measures Citations intensity in Hirsch score	Index can be Sensitive to just very few paper Receiving extremely High citation count
ar-index	Egge and Rousseau (2008)	ar-index = $\sqrt{\text{sum of averate no. of citations per year of articles induded in h core}}$			Taker into account Citation intersity in Hirsch score but Takes into account age of publication in years
h-index	Hirsch (2005)	h-index = h number of paper having at least h citations	Individual, Journal Research Contribution	Easy to compute form citation data through ISI WEB	Sensitivity to Time passed By since the date of publication to variation

CITATION ANALYSIS

As per A. Tariq et.al (2012), the research output of scientist from any University/Institution/National Laboratory is judged by research papers published by them in peer reviewed scholarly journals. Citation analysis is used to

- Evaluate Journal in a field, research conducted in discipline
- Appraise performance of researcher and serve as a criteria for promotion and tenure.
- It has relevance as an analytical tool
- Citation count provides strong correlation with results obtained by researcher.
- Examination of frequency, pattern, graph of citations in articles and books
- Widely used method of bibliometrics.

h-INDEX

The most popular index in scientific community now a days is h-index which was revised by Hirsh (2005). h-index stands for h numbers of papers which have h citations. h-index is of immense importance as it tells us core of output of scientist's research work, about number of people in the core and about input of paper in the productive core (Fig.2).

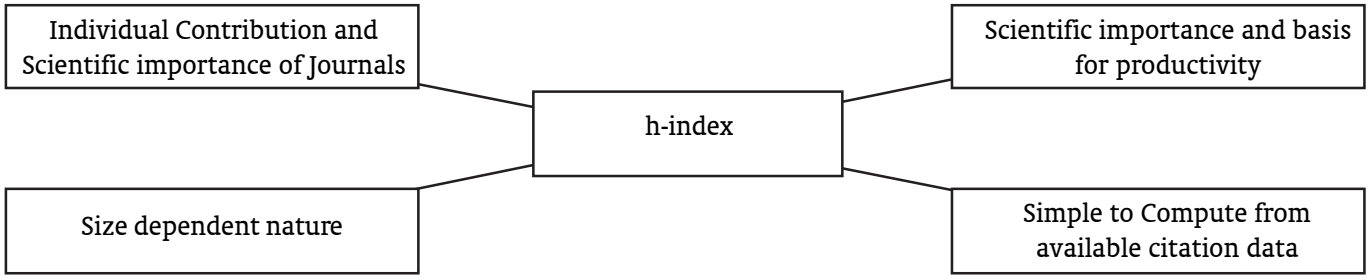


Fig 2. h-index

Sir C.V.Raman carried out his landmark researches with help of spectrometer at Indian Association for Cultivation of Science, Calcutta in 1928 with his co-worker K.S. Krishnan. American Chemical Society and Indian Association for Cultivation of Science, Calcutta declared Raman effect as a historic chemical landmark in 1998 (2nd time designated as international arm of this program). Historic Chemical Landmark program was started by American Chemical Society in 1992. Historic Chemical Landmark recognizes our scientific and technical heritage and encourage the historical important achievement in Chemistry, Chemical Engineering, Chemical Process Industries. Raman effect is analytical research tool with the advent of modern computer, lasers, non destructive identification of minerals to early detection of life threatening diseases. The present author (1) have synthesized ferrite compositions by soft chemistry approaches (2001), which have been accepted with due appreciation by The International Centre for Diffraction Data, Pennysylvinya (USA).

Mahabharat (17), Ramayan, Literature of saints from Maharashtra and India, are Bench Marking work in humanities on basis of which huge research has been carried out world over and have profound effect on their heart and mind.Those holy texts have become their ideal model in day to day life. The figures in it have their God/Goddess to follow their principles in life. For instance in the remark made by Sahitya Akademy "Reflections and Variations on Mahabharata(Edited by T.R.S.Sharma)"reveals " The essays presented here explore many a vaxing question, the ethical and the epistemic concerns, issues of gender, 'Caste' and metaphysical ' Evil' that the epic raises .The volume addresses the question of how such regional language look upon the epic as a contested site and works out its own form of appropriation, its variations in these plots and character". The content of this quotation reflects many scientific and humanistic themes which are beyond to apply the present developed qualitative system bench marking. However there are no parameters for judging its Bench Marking. As there bench marking system in science, it does not appear in researches on literary production. It is highly challenging to fix it.

The hypothesis proposed by researchers seems to be correct in the light of present circumstances in universities.

CONCLUSION

Bench Marking Research refers to outstanding scientific and technological research work carried out by Nobel Laureate in science and technology. However, no such a strict criteria's has been available for judging Bench Marking Research in disciplines of humanities.

For Bench Marking Research

On the part of Researcher

- He / She should become introvert about the question "Research for whom?" It should be for society and not merely for oneself.
- He / She should inculcate the habit of enquiry, curiosity amongst them.
- He / She should try to address social issues/problems through their researches.
- He / She should not try to duplicate other research work.
- He / She should try to remain loyal, honest with himself/herself and with nation to which he/she belongs.
- He / She should bear in mind that duplication of others research work will hamper personal growth as well as brings defames to the country.
- Research work carried out by researcher should be landmark to the next generation to come.

On the part of Institutional Level

- The administrator of Higher Education Institutions should provide ample opportunities, encouragement to the employees without hampering their day to day work.

- They should explore employee's fullest research potential.
- Leadership in academic institutions/universities/CSIR laboratories should believe in cooperation through communication process.
- They should help team members to grow and progress without imposing their ideologies.
- They should become Role Model for the other members of organization.

REFERENCES

1. A. Tariq and S. Jindal, University News, 2012, 51 (10), 6-15
2. S.E. Garfieldse and W. J. Droof, Of Nobel Class: A citation Respective of High Research Authors, Theoretical Medicine and Bioethics, 2004, 1992, 13(2), 117-135
3. J.E. Hirsh, An Index to quantity of Individual Scientific Research output Proc.Natl Acad Sci U.S.A., 2001, 102: 16569-16572.
4. A.K. Indrayan, Impact Factor and Research in Science, University News, 2012, 50 (14), 14-15
5. L. Egghe, Theme and Practice of g index, Scientometrics, 2006, 69 (1), 131-152
6. A. S. Cabrienzo, FJ, H. E. Viedma and H. E. Viedma and F. Harrera, hg-index : A new index to characterize the scientific output of Researchers based on the h-Index — indices, Scientometrics, 2010, 82, 391-400
7. L. Bornmanna and H.D. Danniel, What do me know about the h index? *Journal of American Society for Information Science and Technology,* 2007, 58(9) : 1381-1385
8. R. Rousseau, New Developments related to Hirsch index, 2006, http://eprints.rclis.org/archive / 00006376/
9. A. S. Ewing, J. Peter and T. Peter, Citation statistics, *Statistical Science,* 2009, 24 (1), 1-14
10. J. B. Liang, L. Rousseau, R. and L. Egghe, The R- and AR- indices : Complementing the h index *Chinese Science Bulletin,* 2007, 52 (6), 855-863
11. A. K. Dhiman, How many Index for Research Assessment University News, 2012, 50 (23), 13-18
12. *Harish Padh,* Knowledge Asset and Management in Indian Universities, University News, 2010, 48(2010), 108-109
13. T.V. Ramakrishna, Higher Education in India : A Physicist View, University News, 2010, 48(01), 15-20
14. V. H. Mulimani, Higher Education in India at Cross Roads, University News, 2010, 48(09), 1-8
15. A.K. Indrayan, Impact Factor and Research in Sciences, Universities News, 2010, 50 (14), 14-15
16. A.P.J Abdul Kalam, University : A Partner in Economic Development, University News, 2012, 50 (25), 20-23
17. TRS Sharma, Reflections and Variations on The Mahabharata, Sahitya Akademi, ISBN 978-81-260-2671-5, 2004

SYNTHESIS OF SOME Li-Zn FERRITES BY CERAMIC METHOD & ITS INFRARED ABSORPTION CHARACTERSTICS

* Vilas Shamrao Patil.

ABSTRACT :

The work involves the Synthesis of ferrites by ceramic method, Methods of preparation of ferrites involve sintering, presintering in which heating of the blended material to intermediate high temperature 900 ^{0}C to 1100 ^{0}C and final sintering is the most common process of integrating and preparing solid state materials. So as to obtain the required hardness and density, the presintered mixture is reground, milled, sieved and pressed into desired shape with the binder such as polyvinyl acetate. The final formed product are next to fired to temperatures of 1100-1500 ^{o}C to form the final sintered part. The temperature employed depends on the relative volatility of the constituent ions. For x-ray diffraction and IR absorption studies, the pellets were again grounded and the obtained powder was sieved through a mesh of 100 microns. The magnetic properties were studied by using the samples in the form of pellet. The vibrational energy of the molecules in the solids is determined by infrared spectroscopy

Keywords : Synthesis,ceramic method, sintering, presintering ,final-sintering, infrared absorption characters.

INTRODUCTION:

Pioneering work done by the workers like Hilpert(1) and Snoek(2) has led to development to binary oxide, called ferrite of general formula(**MeO,Fe_2O_3**),Where the **Me** is usually the divalent metal ion with technically important magnetic properties. A new area of synthetic organic chemistry was opened up and a technology of the reaction between oxides to results in products with properties unknown in classical inorganic compounds was pioneered. During the last 30 years, a substantial effort has been put in various laboratories to prepare ferrite materials to cater to the quantitative and qualitative demands of the industry.

Some of the properties are technically important for applications as soft ferrites are saturation magnetization(M_s), coercive field (H_c) , initial permeability(μ_i),loss factor (tan (ä/ μ_i)) and dependence of μ_i on time, temperature and applied magnetic fields. Because of fundamental reasons, it is not possible to prepare a ferrite with a best combination of these properties. Hence compromises have to be made and process parameters have to be arrived at to prepare ferrite tailor made for particular application.

It is now recognized that some of the most basic requirements of preparing a good quality ferrite are compositional control to achieve right combination saturation magnetization (M_s), magnetic anisotropy (k_i), magnetostriction (s) and Curie temperature, control of oxygen content and control of grain size, porosity, and chemical homogeneity. In order to achieve this, various process steps are used. The most accepted technique, which has been commercially used, is the classical **ceramic** method

The work involves the following studies

1. Synthesis of ferrites by ceramic method.
2. X-ray diffraction studies to confirm solid state reaction, determination on crystal structure and calculation of lattice parameter.
3. Infrared (IR) absorption studies to detect the internal vibrations due to tetrahedral and octahedral ion complexes.

Dr. Vilas Shamrao Patil.
Assistant Professor,
Y. C. Warana Mahavidyalaya, Warananagar.
E-mail : vilaspatilkodoli@yahoo.in

1.1.REVIEW OF LITERATURE

In 1938, investigation by Hoffman (4) established that $Li_{0.5}Fe_{2.5}0_4$ is magnetic with a spinel-type crystal structure. The structure is inverse as given by the formula

$Fe_1^{3+}(Li_{0.5}^{1+}Fe_{1.5}^{1+})0_4$

With monovalent Li^{1+} located on octahedral sites. Braun in 1952 discovered that a structural modification can exist below approximately 750 ^{o}C, in which that Li^{1+} (B) and Fe^{3+} (B) ions exhibit long range ordering (5). Gorter (3) suggested chemical method to avoid undue loss of Li_20 by evaporation.

West et al (6) in 1967 prepared lithium ferrite of 99.40% theoretical density by hot pressing technique. They carried out chemical analysis and found that it contained 99.6% of the correct lithium cations. Mishra et al (7) studied high temperature material loss in lithium ferrite using single crystals. Kimujra et al (8) studied ordering mechanism in lithium ferrite. He reported the activation energy of ordering is 192 KJ/mole. By using "hot isostatic pressing treatment" Rui-Yun (9) prepared Li-Zn ferrite and obtained relative density upto more than 99.9%.

Gorter et al (3) reported lattice parameter of Li ferrite to be 8.33 A^{o} . He also reported that lattice parameter remains invariant with addition chromium. Reddy et al (10,11) studied XRD of Li-Ni and Li-Cd ferrite and reported increase in lattice parameter with increase of Ni as well as Cd content. Naik et al (12) studied XRD of Li-Cu ferrite. They reported the cubic structure upto 40% concentration of Cu content and for the higher concentration the crystal structure becomes tetragonal.

In case of Li-Al ferrite (13) lattice parameter goes on decreasing with increase of Al content. Sumitra et al (14) reported increase in lattice parameter with increasing Mg content.

1.2.IMPORTANCE OF STUDY

The receivers of domestic television sets, Mn-Zn ferrite became the undisputed core material for the line time base/e.h.t. transformer and the field shaping yoke used in the picture tube for deflection system. In the domestic radio receiver ferrite rods or plates enabled compact a.m. antennas to be made(15)

The hexaferrites having permanent magnet properties are used for loud speakers and field magnets in d.c. motors for the automobile industry (16).

Lithium ferrite, suitably substituted with a variety of cations in the crystalline structure, exhibit a wide range of properties for use in many applications at microwave frequencies. The high curie temperatures and rectangular B – H loop characteristics have made these materials immensely useful for latching devices such as phase shifters. Some research founds that aluminium substituted lithium composition is suitable for C band (5 to 6 GHz) dual mode phase shifter with saturation magnetization ($4\pi M_s$) of 1250 Gauss. Recently he has studied Ti substituted LiMg ferrite series for the fabrication of microwave devices.

Lithium ferrite materials with Co, Mn, Ti and Al substitutions are of technological importance for use in radar.

For millimeter wave ferrite devices it is required that the $4\eth M_s$ value of gyro magnetic materials are higher than 5000 G (0.5T). Gyromagnetic materials used in millimeter wave devices involves the spinel Li-Zn, Ni-Zn and anisotropic hex ferrites etc.

Haurt et al studied lithium ferrite as n-type semiconducting materials in photoelectrochemical (PEC) cells for solar energy conversion.

2.1 METHODS OF FERRITE PREPARATION

Even though there are other methods of ferrite preparation are available we have used the classical **ceramic** method.

SINTERING

This is the most important process which controls the extrinsic properties of ferrites. There are two steps of sintering, one is presintering and the other is final sintering.

PRESINTERING

Presintering involves heating of the blended material to an intermediate high temperature 900 °C to 1100 °C for ferrites; 1200 °C for garnets. In general, the presintering temperature will be about 100 °C to 300 °C below the final sintering temperature. The purpose of the presintering (if used) is to start the process of forming the ferrite lattice. This process is essentially one of inter diffusing the substituent oxide into chemically and crystallographically uniform structure.

Since some shrinkage occurs in calcining, one advantage of the process is to reduce the shrinkage in the final sintering. This allows better control of the final dimension when this control is necessary. In addition, calcining helps homogenize the material. In case of microwave or recording hard ferrites double calcining is used with intermediate milling.

Recently, Kang et al (18) studied the properties of Mg-Mn ferrites presintered at 725, 750, 800 and 900 °C. They found that the grain size and density of the specimens temperature. They reported decrease in average grain size with calcinations temperature. The coercive force and broadening line-width was also dependent on porosity. Calcining temperature also determines the amount of spinel formation which increases with calcining temperature and saturates above 800 °C. Magnetic properties like maximum flux density(Bm) and remnant flux density(Br) of the sintered body increase with calcination temperature upto 750 °C and are constant after that.

FINAL SINTERING

Final sintering is the most common process of integrating and preparing solid state materials. So as to obtain the required hardness and density, the presintered mixture is reground, milled, sieved and pressed into desired shape with the binder such as polyvinyl acetate. The final formed products are next to fired to temperatures of 1100-1500 °C to form the final sintered part. The temperature employed depends on the relative volatility of the constituent ions. Ferrites containing zinc, cadmium or lithium, for example, are fired at relatively low temperatures, while those containing more refractory ions, like aluminum, are fired higher temperature. In general, the garnets are fired at higher temperatures than the spinels.

In these sintering operations substantial grain growth occurs. Lowest free energy of the substance corresponds to minimum surface area of particles. Thus, in the sintering process solid-state diffusion occurs, large grains grow at the expense of small ones and pores are filled with material or migrate to the exterior. In sintering, densification and grain growth occurs at the same time. Particle size is of the order of a few microns or less. Both the duration and the temperature of the final firing influence grain growth and density achieved. For most technically useful materials densities of greater than 96 % of the theoretical value are necessary.

2.2 SYNTHESIS OF FERRITES UNDER INVESTIGATION

The standard ceramic method was used for the preparation of ferrite samples. The ferrite samples were prepared with the general formula $Li_{0.5-x/2}Fe_{2.5-x/2}Zn_x0_4$ where $x = 0.05, 0.1, 0.15, 0.2$ using high purity A. R. grade Li_2CO_3,ZnO and Fe_2O_3. These powder weighted in the required mole proportions on a semi microbalance having last count of 0.001gm and were mixed thoroughly in an agate mortar in acetone medium.

This powder was presintered at 600 °C for 12 hours, in a glow bar furnace in air. Then the furnace was cooled slowly. Calibrated Al-Cr thermocouple was used to measure the temperature of furnace. The presintered powder was then ground in an agate mortar in acetone medium. The mixture was compressed in the form of pellets by using a die of 1.5 cm. diameters and by applying a pressure of about 7 to 8 tonnes per square inch for 2 minutes. To reduce the lithium loss (19) the samples were fired at 900 °C for 24 hours in air medium. The samples were cooled in the furnace atmosphere.

For x-ray diffraction and IR absorption studies, the pellets were again grounded and the obtained powder was sieved through a mesh of 100 microns. The magnetic properties were studied by using the samples in the form of pellet.

3.1 INFRARED ABSORPTION CHARACTERSTICS OF SOME Li-Zn FERRITES

The vibrational energy of the molecules in the solids is determined by infrared spectroscopy. The application of IR spectroscopy to ferrites are to :

(1) Detect completion of solid state reaction

(2) Study of cation distribution

(3) Study the deformation of the spinel structure and distribution of cations ,

(4) Calculate force constants for tetrahedral and octahedral sites.

The ferrite crystallize in the crystallographic form with space group Fd_{3m}-$0_4$7. According to group theoretical considerations four infrared active fundamentals are expected in the vibrational spectra of normal as well as inverse ferrites. In the frequency range 200 to 800 cm^{-1} spinel ferrites usually show two absorption bands corresponding to tetrahedral and octahedral sites. Extensive earlier research work on the IR spectra of ferrites has been carried out by Waldron (19). According to him the vibrational, electronic and magnetic dipole spectra can throw light on the position of the ions in the crystal lattice. The bands arise from lattice vibrations of the oxygen ions against the cations. At higher frequencies, gradually increasing absorption caused by electronic transition is observed.

The vibrational frequency depends on the cation mass, cation oxygen bonding force and the unit cell parameters. Waldron (19) has given the detailed force constants and specific heat of materials. The cubic to tetragonal distortion of manganese ferrite has been observed with IR spectra by Brabers (20) and he has conclude that there are local tetragonal distortion origination from the Jahn-Teller effect of octahedral mn^{3+} ions. At 335 cm^{-1} Klerk (21) has observed a third fundamental active mode of vibration in case of $ZnFe_20_4$. Josyulu et al (22) have noticed four fundamental active mode of vibrations for Co-Zn ferrites. Hafner (23) and Tarte (24) have applied the IR spectroscopy to investigate the absorption bands.

3.1 EXPERIMENTAL

The IR spectra of the samples of the range 200-800 cm^{-1} were recorded at room temperature on Perkin-Elmer 783 IR spectrometer in the KBr medium.

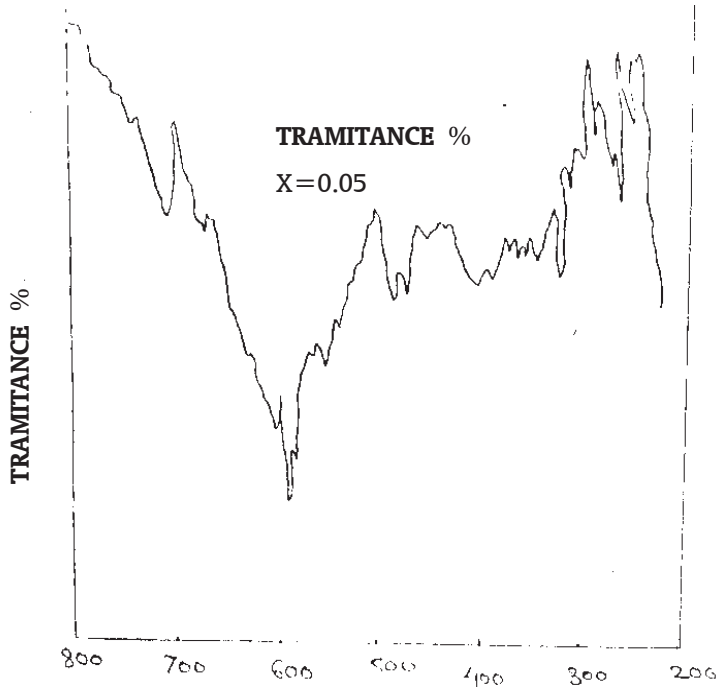


Fig-I. **(WAVE NUMBER)cm^{-1}**

Infrared Spectra of $Li_{0.475}Zn_{0.05}fe_{2.475}o_4$

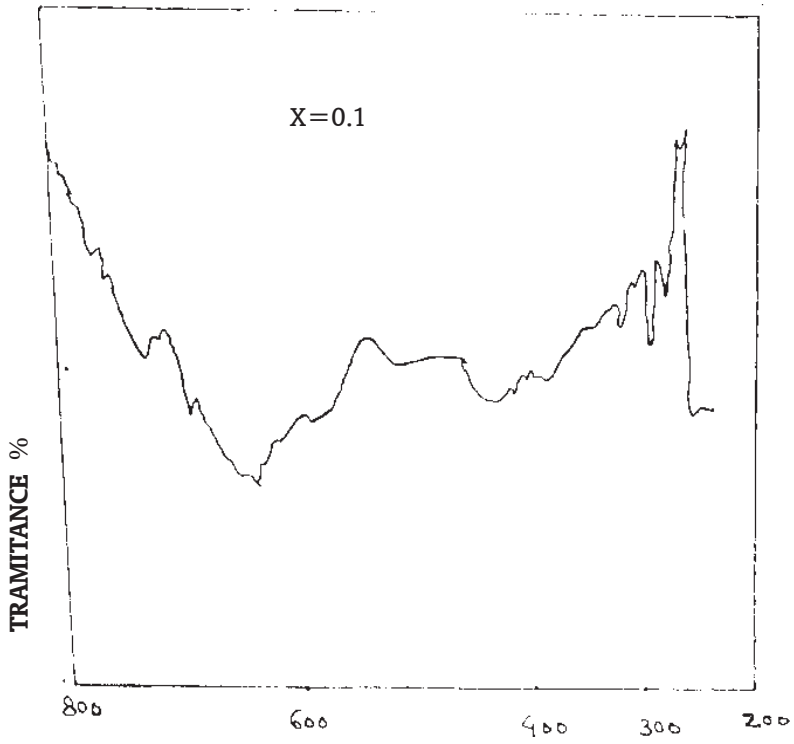


FIG-II. **WAVE NUMBER cm^{-1}**

Infrared Spectra of $Li_{0.45}Zn_{0.1}fe_{2.5}o_4$

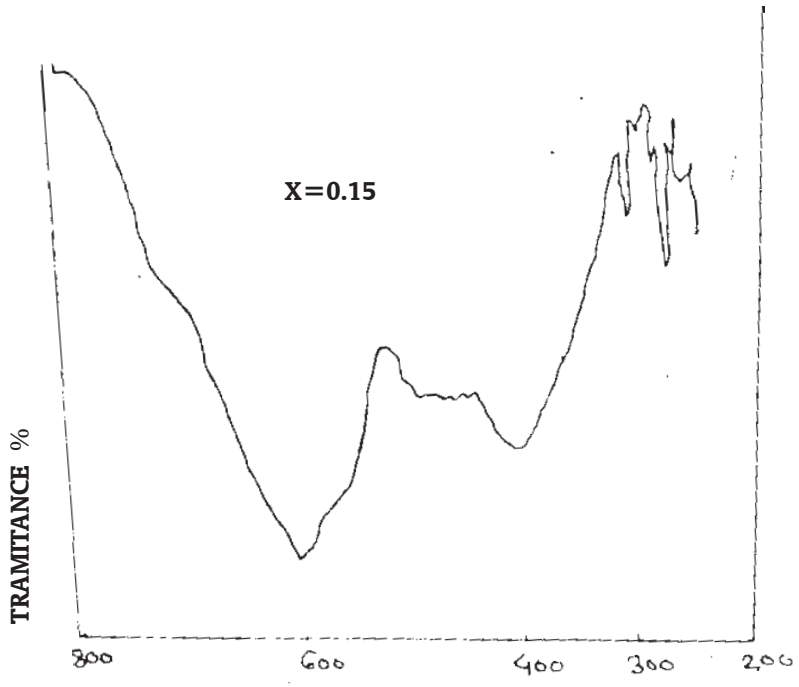


FIG-III. **WAVE NUMBER cm^{-1}**

Infrared Spectra of $Li_{0.425}Zn_{0.15}fe_{2.45}o_4$

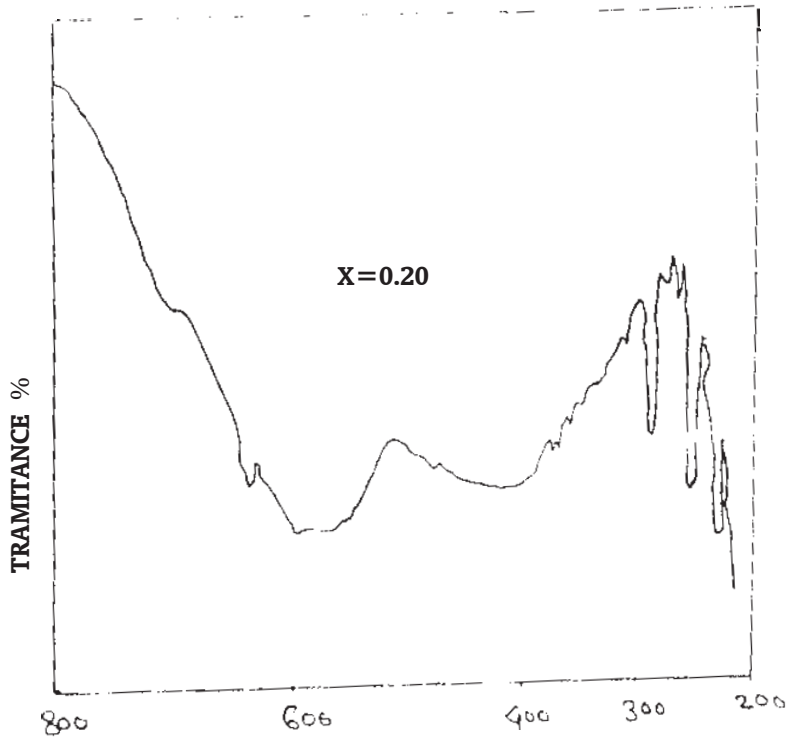


FIG. IV. **WAVE NUMBER cm^{-1}**

Infrared Spectra of $Li_{0.4}Zn_{0.20}fe_{2.4}o_4$

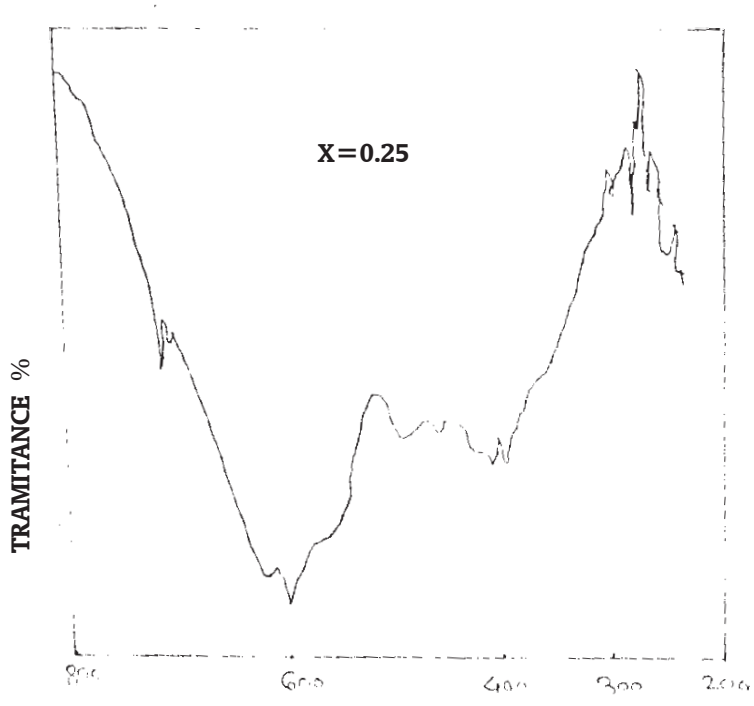


FIG.V. **WAVE NUMBER cm^{-1}**

Infrared Spectra of $Li_{0.25}Zn_{0.25}fe_{2.25}o_4$

TABLE 1.1

Data on lattice vibration frequencies for $Li_{0.5-x/2}$ $Fe_{2.5-x/2}Zn_x0_4$ ferrites

No.	X	1	2	3
1	0.05	600	490	320
2	0.1	610	490	310
3	0.15	600	480	310
4	0.20	600	490	290
5	0.25	600	480	—

3.2 RESULTS AND DISCUSSION

Ferrite possesses the mineral spinel that crystallizes in the cubic form with space group Fd_{3m}-$0_4$7. Using the space group and point symmetries, group theoretical calculations show four active fundamental in the vibrational spectra of normal as well as inverse cubic spinel.

IR spectra of all the samples studied in the present case are shown in Fig. I to V The position of the principle bands are given in Table 1.1 The high frequency band ($_1$) and the second absorption band ($_2$) are found to be around 610 cm^{-1} and 490 cm^{-1} respectively.

Waldron (8) attributed the $_1$band to the intrinsic vibration of the tetrahedral group. Thus it is clear that Li^{2+} O^{2-} complexes are responsible for it occurrence of $_1$ band.

The $_2$ absorption band for lithium ferrite observed at 480 cm^{-1}. Hafner (23) attributed $_2$ band to the octahedral site.

The $_3$ absorption band in present case is found for the sample up to x=0.20. Thus $_3$ band may be attributed to the Li^{+} $^{+}O^{2-}$ metal complexes at the octahedral site.

From above characteristics Lithium ferrite materials with Co, Mn, Ti and Al substitutions are of technological importance for use in radar, detectors for switching application in nanoelectronics. Also lithium ferrite as n-type semiconducting materials in photoelectrochemical (PEC) cells for solar energy conversion.

REFERENCES

1. Hilpert G. Patent No. 2246343 and 227767
2. Snoek J. L. Physica 3 (1936) 463.
3. Gorter E. W. Philips Res. Repts. 9 (1954) 321
4. Hoffman Allex “Crystal Chemistry of Lithium Ferrite” Naturwissenschaften 26 (26) (1938) 431
5. Braun P. B. “superstructure in Spinels” Nature 170 (1953) 1123
6. West R. G. and Blankenship A. C. J. Amer. Cerm. Soc. Vol 50, no. 7 (1967)
7. Mishra R. K. and Thomas G. J. Amer. Cerm. Soc. Vol 61, no, 4-4 (1978)
8. Kimura T., kohmura K. and Yamaguchi T. J. Amer. Cerm. Soc. vol 65, no. 1 (1982)
9. He Rui-ynn, Chen xian Li and Lishu xiang Proc. ICF 5 (1989)

10. Readdy P. V. and rao T. S. J. Less Common Metals 75 (1980) 255
11. Reddy P. V., Reddy V. D. and Ravinder D. Phys. Stat. Solidi (a) 127 (1991) 349
12. Naik A. B. Patil S. A. and Powar J. IJ. Mater. Sci. Letts. 7 (1988)1034
13. Dargel L., Jaroki E.and Olkiewicz K. Acta Physica Polonica vol a 41(1972)
14. Sumitra P. H., Sharma N. K. and Kothari D. Proc. ICF 6 Japan (1983)
15. Snoek J. L."New Development in Ferromagnetic Materials" Elsevier Publishing Co., New York, A rdam (1947)
16. Went J. J., Rathenau G. N. and Gorter E.W. Philips tech. Rev.; 13 (1951) 194
17. Baba P. D., Argentina C. N. and Courtney W. E. TEEE Trans. Trans on Magnetics, Mag-8 (1972) 83
18. Kang D. S., Ken H. S. and You B. D. Proc ICF6 (1972)
19. Waldron R.D. Phys. Rev. 99 (1955) 1727
20. Brabers V. A. M. Phys. Stat., solidi(a) 12 (1972) 624
21. Klerk J. and Brabers V. A. M. Solid stat. commun. 14 (1974) 613
22. Josyulu O. S. and Sobhanadri J. Phys. Stat. Sol. (a) 65(1981) 479
23. Hafner S. T. z. Fur. Krist. 115(1961) 331
24. Tarte P. Spectrochim. Acta. 19 (1963) 49

A STUDY OF ERRORS IN ENGLISH LANGUAGE PROFICIENCY OF ENGLISH TEACHERS IN SELECTED ENGLISH MEDIUM PRIMARY SCHOOLS

⁎ Dinesh Dattatraya Satpute

Abstract

The present scenario demands to verify oneself time to time whether one is able to teach English in the changing trends of Education. In our country, the provision is made by CIEFL Hyderabad to test English proficiency since 2000 through NELTS. There are different types of tests for testing language. According to W.F. Mackey language test may differ in (1) Purpose, (2) Design and (3) Suitability (1965: 404). Regarding the problem of our study, we found proficiency test suitable which aims at finding out how much of a person has mastered. Oxford Advanced English Dictionary illustrates the term 'Proficiency' means movement towards completeness or perfection, improvement in skill or knowledge, which means adeptness, expertness, skill or the state, or degree of improvement attained. (1971: 1430)

The term 'competence' is often used synonymous with 'proficiency' which means sufficiency capacity or sufficiency of qualification. Oxford Paperback Dictionary the Thesaurus and Word Power Guide defines competence (also competency) as a noun, means the quality being competent further the term is being evolved competent (adj) means having been successfully, satisfactory, though not outstanding, able, acceptable, accomplished, adept, adequate,, adroit, capable, effective, expert (DVP 2002).

The nature of 'Language Competence' as per Dell Hymes (1972) has promoted is communicative competence which includes both grammatical knowledge and the ability to use this knowledge to perform different kind of functions such as requesting, inquiring, suggesting, ordering, greeting, agreeing, promising, apologizing, reporting, advising etc. In the era of Globalized Education system the challenge to expose our student to the innovation in Education successfully will be made easy by making students – communicative and proficient in English with the help of proficient English Teachers.

Key Words

ELT - English Language Teaching , **EM** - English Medium, **GLP** - General Language Proficiency

P.T. - Proficiency Test, **NELTS** - National English Language Testing Service, Hyderabad

Objectives

1) To test linguistic and communicative proficiency of the selected teachers teaching English in the selected EM primary schools in Kolhapur District.

2) To explore the prospects as may be appropriate for the improvement of teaching of English at EM Primary School level.

Hypothesis

The following hypotheses were tested under the present study:

1) It is assumed that the teachers teaching English at EM Primary School level lack in general Language proficiency in English.

Dr. Dinesh Dattatraya Satpute
Assistant Professor
Dept. of English, Y. C. W. M. Warananagar
Email: dineshsatpute2010@gmail.com

2) It is assumed that the teachers may commit the errors and the number and nature of the errors will be serious.

Research Methodology

1) Primary data collection

i) Observation, discussion with the teachers

ii) Administration of proficiency test of 100 marks to the selected teachers to seek written responses.

2) Secondary Data

Library Method - Essential conceptual & theoretical premises were derived from Library references.

Analysis of Data

1) Statistical Analysis of the Data followed by interpretations

2) Verbal or descriptive analysis

3) Error analysis (not heuristic in nature)

Limitation

1) The proficiency test aims to test linguistic and communicative proficiency of the teachers through written performance and their performance in spoken English has not been taken into account.

2) Time is another limiting factor for the study.

We selected 10 representative sample schools and 50 English teachers from the urban, semi urban and rural areas of the District. The most no. of the primary schools is spread in the urban area and so we selected 60% schools from urban and semi urban area and 40% from rural areas.

Rationale for the Proficiency Test

It was requirement of evidences to test skills such as listening comprehension, reading comprehension, letter writing, composition, communication skills and translations.

According to Oller one should perhaps measure four integrated skills by using different methods obtaining various approaches and forms (1976). In the field of language research, the established tests for example GRE, TOFEL, NELTS etc. attempt to test different areas for instance in almost all the proficiency tests most of the general factors as mentioned by Oller Jr. (1983:46) are tested which are extensively used. Here we found Oller's integrative approach testing apt and we selected it for our study.

Design of the Proficiency Test

We adopted Oller's integrated approach, NELTS and translation for testing general language proficiency, language fluency, knowledge of structure, word fluency, language comprehension, containing the following (1) Vocabulary (2) Grammar (3) Reading comprehension (4) Cloze test (5) Composition (6) Listening comprehension (7) Communication skills (8) Translations

Administration and Assessment of the Proficiency Test

We administered P.T. in English for 100 marks to the respondents and assessed their responses adopting S.S.C. Board pattern of assessment. Each and every mistake, errors of spelling, Grammar, Punctuation and content was taken into consideration for allotting marks. Also we considered different reasons behind their errors. "According to Dulay, People can not learn language without first systematically committing errors" (1982:38).Regarding the nature and reasons behind the errors in second language acquisition some researchers have made attempts to distinguish and classify the errors such as

1) Performance errors

2) Competence errors Chomsky (1965)

3) Language Transfer, fossilized items (errors) are result of the native language

4) Transfer of training

5) Strategies of Second language learning

6) Strategies of second language communication

7) Overgeneralization of target language, Selinker (1984)

8) Interlingual errors (cause by interference of native language with target language a

9) Intra-lingual errors (caused by interference with target language) Richard (1984)

Analysis of the Teachers' Performances on P.T.

The analysis of the data is presented in the following form:

(i) Statistical analysis of the data

(ii) Question-wise statistical details.

(iii) Grade-wise statistical details

(iv) Observations overall performance

(v) Interpretation of data

Statistical Analysis of Data

(a) Overall Average scores:

The overall average scores of the teachers performance on P.T. is 311.6 i.e. 62.32%

(b) Average Scores: The table below explicitly indicates average scores of the EM teachers performance.

Table 1

Overall Average Scores

Medium	Average Score	Percentage
EM	559.6	55.96%

The above statistical analysis clearly indicates the following results.

1) Average Score of these EM teachers is 55.96%.

2) Only 90% (i.e. 45) English teachers passed the proficiency test.

3) 82% (i.e. 41) teachers scored above 50 marks.

4) 18% (i.e.09) teachers scored below average i.e. 50 marks in proficiency test.

Therefore above statistical analysis shows that overall performance of these teachers is satisfactory.

Grade-wise statistical details of the proficiency test scores

The grade-wise performance of the teachers on P.T. is presented under seven grades. These grades are formulated on the basis of a baseline that number of teachers scoring marks 50% and above. In the hierarchy of seven grades the best of all is outstanding and the lowest of all is very poor.

The baseline of 50% applied to each question is based on model of Dr.R.H. Dave (SCERT: 1998:25)

Table 2

Grading of the Scores and Respondent Teachers

Grades	Marks	No. of Teachers (50)
'0'-Outstanding	50% and above	45 and above
'A' –Very Good	50% and above	35 to 44
'B' –Good	50% and above	30 to 34
'C' –Average	50% and above	25 to 29
'D' –Below Avr.	50% and above	20 to 24
'E' –Poor	50% and above	10 to 19
'F' –Very Poor	50% and above	Below 10

This grade-wise analysis of scores aims to locate weaker areas in English proficiency of teachers and to present comprehensive profile of gradation of performances of the teachers in explicit ways so as to give an idea of tendencies of question-wise scores.

The table below indicates the grade-wise statistical details of the scores of the teachers on P.T. in English.

Table 3

Grade-wise Statistical Details of EM Teachers Proficiency Test Scores

Grades	Question Number	Types of Question	Number of Teachers (50)	
			Above 50% marks	Above 70% marks
1	3	4	5	6
'O' Outstanding	8-A	Spelling Correction	50	50
	B	Word formation	50	50
	C	Synonyms	50	50
	D	Antonyms	50	50
'A' Very Good	6	Completion of Conversation	41	28
	2	Reading Comprehension	40	28
	3	Listening Comprehension	39	25
	5	Picture Description	38	22
	9-A	Translation – Eng. Mar.	37	18
	4	Letter Writing	36	13
	9-B	Translation – Mar.-Eng.	35	15
'B' Good	1	Cloze	34	11

'C' Average	7	Express-Apo/Gra/Symp.	27	11
'D' Below Average	--	--	--	--
'E' Poor	--	--	--	--
	3	Listening Comprehension	10	01
'F' Very Poor	--	--	--	--

The table above distinctly indicates the grade-wise performance of the teachers which is not satisfactory in nature .

Observations - Overall Performance and Interpretation

The overall performance of teachers on proficiency test in English is satisfactory in itself.

It is noticed with teachers performance on question 6 – Communication Skills (completing conversation (A) Telephonic and (B) Interview) categorized under 'A' grade - 'Very Good' that in communicative proficiency and grammatical proficiency, they found to be very good. The performance on question 2 – (Reading Comprehension) and question 3 (Listening Comprehension), testing respectively reading and listening abilities as well as comprehension and syntactic abilities of the teachers, scores of both the question are recorded under 'A' grade- 'Very Good.' It indicates that comprehension ability and grammatical proficiency of teachers is very good.

The performance on question 9-A (English to Marathi translation) is under 'A' grade ('Average') and 9-B (Translation Marathi to English) is categorized under 'A' grade –

' Very Good' indicate that teachers attempt these questions in which overall language proficiency is being tested. However, their performance in translation EMT is better than MET. It shows that they can construct sentences, grammatically correct in English. The teachers in both syntactic as well as grammatical proficiency in English are very good. The performance on question 5 – (Picture Description) recorded under 'A' grade- also indicate that EM teachers attempt good in written composition and find to compose grammatically correct composition.

Except the two lowest performances of teachers as in question 1- (cloze) Good grade 'B' and question 7- (Apo /gra/ symp) categorized under grade – 'C' show that teachers find difficult to attempt exercise testing syntactic proficiency in English.

The overall performance of English teachers on PT as it is found in the statistical analysis is a matter of satisfaction. In fact, teachers are exposed to English as L1, since their school days from Standard I onwards. They exposed to English for 10 to 12 years under the old and new pattern of S.S.C. D.Ed./H.S.C. D.Ed. of their professional qualification. They are anticipated to perform in 'very Good' grade on PT in English. Their scores on different test types distinctly indicate their level in English language. The present study also intends to throw light on the nature of erroneous production in the proficiency test by the teachers. However present study neither intends nor is it possible and essential to attempt error analysis of all answers. Hence the attempt is made here to present error analyses of the performances on some six representative selected answer papers adopting the criteria by identifying groups such as good group and poor group in which good group includes 3 toppers and poor group includes 3 lowest papers.

Analysis of the Teachers Performance on the P.T. Error

The proficiency test aims to test communication and linguistic competence of the teachers. The data analyzed reveals overall 'Very Good' performance of the teachers.

Yet the present study also intends to throw light on the nature of erroneous production in the proficiency test by the teachers. However present study neither intends nor is it possible and essential to attempt error analysis of all answers. Hence the attempt is made here to present error analyses of the performances on some six representative selected answer papers adopting the criteria by identifying groups such as good group and poor group in which good group includes 3 toppers and poor group includes 3 lowest papers.

The error analysis is attempted at seven different levels viz.

1) Syntactic level
2) Spelling (lexical level)
3) Preposition (lexical level)
4) Articles (lexical level)
5) Punctuation
6) Translation (Marathi to English and English to Marathi)
7) Overall observations.

The marks obtained by 6 representative teachers are as below.

Table 4

Marks Obtained in PT by Teachers

Category	EM	
	Teachers No in PT	Marks Obtained
Good Group	1. (20)	82
	2. (15)	81
	3.(35)	78
Poor Group	1. (3)	34
	2. (23)	33
	3. (38)	26

NB. Numbers in brackets show Sr. No. in the test.

The table above clearly indicates to sample groups identified as 'good group' and 'poor group' from the teachers' performances.

The table below indicates syntactic errors of the teachers' performance

Table 5

Syntactic Errors

	Error category	Good group	Poor group	Total
I	**Sentence Structure Errors**			
1.	Whole sentence or clause aberrant	-	6	6
2.	Verb missing	-	1	1
3.	Verb complement object	1	3	4
4.	Prepositional phrase	-	1	1
5.	Word order	-	1	1

6.	Extraneous words	1	1	2	
7.	Awkward phrasing	1	-	1	
II)	**Verb centered errors**				
8.	Tense	1	1	2	
9.	Verb formation	-	1	1	
10.	Subject verbs agreement	-	1	1	
11.	Two-word verb	-	3	3	
12.	Irrelevant verb	-	3	3	
	Total	4	22	26	

Table 6

Group-wise and Category-wise Number of Teachers Errors

Sr.No.	Category errors	EMG	EMP	Total
(1)	Syntax	04	22	26
(2)	Spelling (Lexical)	03	10	13
(3)	Preposition (Lexical)	03	05	8
(4)	Article (Lexical)	01	03	4
(5)	Punctuation	08	16	24
(6)	Translation ME	09	21	30
(7)	Translaion EM	07	12	19
Total	35	89	124	
ME:	Marathi to English		EM:	English to Marathi

Error Analysis - Spelling

So far English spellings are concerned; it is obvious that English spelling system is imperfect, pronunciation most of the time cannot help to write proper spellings. There are two verbs having identical pronunciation but diverse spellings and meanings, for example 'right', 'write'. Therefore, English spelling is not always a guide to the sounds, the letters stand for. This as a result, leads the users of English in to a great confusion.

Regarding the spelling errors Good group committed 3 errors whereas Poor group committed 10 errors.

Error Analysis: Preposition

A preposition is a word, which is used to show the way in which other words are connected. Preposition may be a single word such as by, from, over, under or they may be more complex and composed of several words such as apart from, in front of, in spite of, etc.

A noun or pronoun usually follows a preposition. Unlike other language, English make; frequent use of prepositions to express basic relationships between the words.

The concept of preposition for the foreign learners of any language arouses confusion which can not be applicable to Indian language, where these words might be better analyzed as 'post (pre) positional' since they follow the headword.

The data containing errors in preposition are collected from the questions such as Letter writing, Composition and Communication skill. Good group committed 3 errors and Poor group committed 5 errors.

Error Analysis: Article

In English, it is often necessary to use an article before a noun. There are two kinds of article, the definite articles 'the', and indefinite articles 'a' or 'an'. In order to speak or write English well, we have to use them. There is no parallel usage in Marathi, so the use of article creates confusion among English learners, as second language learners. There are some rules in English grammar regarding use of articles, however, the rules have a number of exceptions due to the diversity between written and spoken English e.g. words like, honest, M.A., university, etc. Against this background, teachers from different mediums and categories seem producing errors in the choice and the use of articles. The Good group of teachers committed only 1 error whereas Poor group committed 3 errors.

Analysis: Punctuation

Punctuation plays a very important role in written language to communicate the message properly without creating any confusion. Wrong punctuation communicates incomplete message, even a terrible deviation from meaning intended. In the earlier years of the learning English by foreign learners, punctuation is one of the commonest problems.

Table 7

Group-wise Categories of Errors

Group	No capitalization	Unnecessary capitalization	PM at wrong place	PM Not used	Total
EMG	2	3	1	2	08
EMP	4	5	4	3	16
Total	6	8	5	5	24

(PM – punctuation mark)

It is noticed that the representative teachers of good group committed 8 whereas poor group committed 16 punctuation errors.

Error analysis: Translation

The present study included question on the translation. Translation is an inevitable stage in second language learning. So a question of 16 marks (8 for Marathi to English and 8 for English to Marathi) is included in the tests in order to test the proficiency in English.

Catford argues that translation is a language activity and defines it as "Translation observes an activity in the source language (SL) and performs a related event in the target language (TL). It is the replacement of textural material in one language (SL) by equivalent textual material in another (TL) language" (1965: 27)

Error Analysis: Marathi to English Translation

Table 8

Group-wise Classification of Errors

Group	MT	Addition	Omission	Marathi as it is	Spelling errors	Total
EMG	3	2	2	-	2	09
EMP	7	5	2	1	6	21
Total	10	7	4	1	8	30

Error Analysis: English to Marathi Translation

Table 9

Group-wise Hierarchy of Teachers Performance

Sn.	Sub section of Errors	EMG	EMP	Total
(1)	Lexical (Spell/Pre/Arti)	7	18	25
(2)	Syntactic	4	22	26
(3)	Punctuation	8	16	24
(4)	Translation	16	33	49
	Total	35	89	124

Spell-Spelling, Pre-Preposition, Arti-Article

It is noticed that both the groups Good and Poor could not perform well and committed highest number of errors in translation which are serious in nature and proved that lack in proficiency in nature

Conclusion

The overall performance of the teachers on PT in English is not satisfactory. The performance of the teachers' on P.T. is concentrated under Very Good grade.In the light of the statistical analysis of scores of the teachers on P.T. it is found that they lack in general language proficiency. But, the seriousness of errors by EM teachers makes it clear that only the upper category teachers from EMG group are better proficient in English up to a certain degree than EMP group. The underachiever EM teachers of EMP group have committed a large number of errors. Therefore the hypothesis first number tested under this study is partly validated.

An error analysis of the teachers performance taken up so as to throw light on their degree of the quality of proficiency in English and different linguistic and communicative performance. It is noticed that the teachers face the problems in acquisition of language. The process of errors fossilization is revealed through the error analysis. The types of errors in the present study seem to have originated due to 'interlingual inference' as well as 'transfer of training' or the teachers 'communicative strategy'. The fossilization of the errors of the 'language transfer kind' is prevalent in the performance of the EMP teachers distinctly indicates their development stage in English acquisition. The errors committed by the teachers are serious in nature. The underachiever EM teachers of EMP group have committed a large number of errors. Therefore the hypothesis first number tested under this study is partly validated. This study suggests to avail in-service training opportunities to the underachievers to enhance their linguistic and communicative abilities in specific.

References:.

1) Catford, J.C., *A Linguistic Theory of Translation*, Oxford University Press, 1965.

2) Chomsky, N., *Aspects of the Theory of Syntax*, MTI Press, 1965**3) Chomsky, N., *Research on Language Learning and Linguistic*, Report of Northeast Conference, 1966.**

4) CIE & FL, *National English Language Testing Service*, The NELTS Handbook, Hyderabad, 2000.

5) Hymes, Dell, *On Communicative Competence*, Cited in Pride and Holmes (Eds), Readings in Sociolinguistics, London, Penguin Books, 1972.

6) Mackey, W.F., *Language Teaching Analysis*, London, Longmons, Green and co. Ltd., 1965, P. 404.

7) Oller, J.W. Jr. (Ed.), *Issues in Language Testing Research*, London, Newburry House Publications, 1983.

8) Oxford English Dictonery, 1971, P. 1430

9) Oxford Paperback Dictonery, Thesaurus and Word Power, Guide, New Yourk O.U.P., Indian Edition, 2002.

10) Richards, J.C., Error Analysis Perspectives on Second Language Acquisition, Longman, 1984.

11) Selinkar, *Interlanguage, International Review Applied Linguistics,* 1972

WOMAN'S JOURNEY TOWARDS ATTAINMENT OF SELF-HOOD IN ALICE MUNRO'S SHORT STORY COLLECTION *LIVES OF GIRLS AND WOMEN*

* **Mrs. Sharmila Kulkarni**

ABSTRACT

The present paper attempts to focus on Alice Munro's short story collection *Lives of Girls and Women* as a study in woman's journey towards attainment of self-hood. *Lives of Girls and Women* is a collection of 8 interlinked short stories by Nobel laureate Alice Munro, a Canadian short story writer. It is a sensitive, warm recollection of a young girl Del Jorden living in a small Canadian town, of her lonely childhood and adolescence in prescriptive atmosphere and her gradual development towards attainment of self-hood.

The present paper studies how Del emerges as a liberated woman by rejecting male dominance and constraints of womanhood. The present paper also focuses on how Alice Munro has presented changing phases in woman's journey towards self realization and breaking free from patriarchy.

Key Words: - Attainment of selfhood, constraints of womanhood, changing phases, breaking free from patriarchy

Introduction:

Canadian Short Story Writer Alice Munro is hailed as the master of contemporary short story. She has popularized short story form as a major and the most popular literary form of 20th century. This supreme craftsman of short story is the recipient of innumerable accolades and prizes including the most prestigious Nobel Prize for Literature (2013) and Man Booker International Prize (2010). She has been writing since 1950 and her stories have been translated into more than 20 languages. Munro has exclusively dealt with short story form and her stories often reveal complexities of female psyche. The present paper attempts to study Alice Munro's short story collection *Lives of Girls and Women* in the light of woman's journey towards attainment of self-hood by liberating herself from cultural shackles, deep rooted customs and male subjugation.

Lives of Girls and Women is second of Munro's 14 short story collections and regarded as a milestone in her literary career. It is published in 1971 and consists of 8 interlinked short stories written in buildungsroman genre. Even though the stories are interconnected, they could be read as independent stories having separate buildup, tension and summing up of its own. They are a worm and sensitive recollection of a young girl Del Jorden, of her lonely childhood, adolescence and gradual development towards attainment of self-hood, during 8 to 20 years of her age. It is a portrayal of her journey from traditional limitations on female psyche towards fulfillment and emancipation.

Del's journey towards attainment of self-hood:

Del is growing up in a small Canadian town Jubilee. In the stories *The Flats Road, Heirs of Living Body* and *Age of Faith* she is a small school going girl who is providing herself the means of self understanding through her experiences and observations of the world around. She is growing up in the company of many other women such as her own mother, grandmother, aunts, teacher, her friend, a boarder living in her own house etc. All are of different

Mrs. Sharmila Kulkarni
Associate Professor,
Yashwantrao Chavan Warana Mahavidyalaya, Warananagar 416113.
E-mail : spkulkarniwarana@gmail.com

nature and mentality and everybody has a different story. Her aunts are typical conventional women. Her own mother is a topic of social ridicule and domestic criticism due to her rebel against patriarchy. In the story *Changes of Ceremony* Munro describes how Del and her school friend Naomi who are now in their adolescence are enjoying reading of secret books and gossip about man-woman relationships. There is Miss Farris who is Del's school teacher. Del and Naomi enjoy gossiping about her. There is her mother's boarder Fern Dogherty who was forsaken by her lover. Del's awareness of her own self and society is taking shape through her observations of all these women around her and through them Munro has presented the life of contemporary Canadian women.

In the process of presenting Del's attainment of selfhood, Alice Munro has focused on changing phases in woman's journey towards self realization and breaking free from male dominance. Initially women were not aware of male dominance over them. Del's aunts – Elspeth, Grace and Moira are the representatives of those who have accepted male dominance willingly and they are happy in their subjugated state. Aunt Elspeth and Grace are spinsters who are living with their brother Craig. They had clear line drawn between men's world and women's world and they never ever meddle with it. They respect men's work beyond anything. When their brother Craig is typing they observe him with awe and drop their voices so that he should not be disturbed. 'Craig is working' is a great matter for them and they immensely believe in the importance of men's work. Their own work is restricted to kitchen. Munro describes that they are busy in their house marathons ……. of scrubbing, canning, pickling, washing, starching, ironing, baking etc. …… They live in their own civilization. The other aunt Moira is described as a sufferer from varicose veins, hemorrhoids, dropped womb, cysts, discharges, inflammations, lumps and stones at various places. Munro calls her as 'a wrecked survivor of female life' (Lives- , 46). This is a bitter comment made on lives of women in general, who are the mute sufferers in the family.

Del's aunts are typical example of women who live life as it comes. They hate being ambitious and appreciate not preferring to do anything. For them 'being ambitious was to court failure and to risk making a fool of oneself (Lives-, 44). They believe in the beauty of negativity and think that not doing things require more wisdom and self-respect than doing them. This is the realistic portrayal of the women in patriarchy who preferred to live life in their own protected shell and did not risk going for experiences.

Del's mother Addie represents the second phase in women's emancipation. She marks the beginning of new awareness of self respect, new awakening which received despise and ridicule in the beginning. Addie, as described in the story *Princess Ida,* is opposite to Del's aunts, rather she is different from all the other women around her. She wants to prove herself and achieve self-identity and self-reliance. She aspires for better life for herself and her children. She labored a lot in her childhood for her education. She has worked in boarding house kitchen, waited on the tables and even cleaned chamber pots to educate herself. She is not satisfied with the life on her husband's fox farm. She wanted better education for her children and so lived in a rented house in Jubilee. She used to sell encyclopedias and fur articles made on her husband's fox farm and for that she used to drive alone over highways and back roads, even if she could hardly sell anything. She used to write letters to local news papers and radio station to draw attention to local problems. She has joined book discussion group to show off herself as an intellectual. These are all her comic attempts to prove herself distinct from other conventional women and draw attention of others. She herself is an atheist and is against compulsory religious education in schools. She promotes education and rights of women. She openly advocates use of birth control pills, distributes them in public and is a topic of social ridicule. Even Del hates her mother's all endeavors.

Addie's life can be concluded as a struggle, disappointment and even more struggle. Addie is the beginning of new awakening in women, beginning of women's struggle to break free from cultural shackles and male subjugation, even if initially it received failures, disappointment and ridicule.

Munro has given cultural shocks through Addie's characters. She talks freely on various issues, even on the topic like sex with her teenage daughter. She is a feminist who is against men and warns her daughter not to get distracted over male. She tells Del-

Once you get distracted over a man, your life will be never your own and always you have to carry the burden a woman always does. ….. A man will use you as per his whim, just a little closer than his dog, a little dearer than his horse ….. . It is true, it was true (Lives-, 193).

Addie strongly believes that though the present situation of women is grim today, she is hopeful of the coming change in woman's life even if she herself has not experienced it. She is optimistic and believes that –

There is change coming over the lives of girls and women… it is up to the women to make it come (Lives-, 193).

Through Addie Alice Munro has tried to portray woman's struggle to redefine her place in patriarchy. This is the beginning of a journey towards emancipation, though initially there are frustrations. Del forges her path through her mother's failures. Finally Del stands as a liberated woman who has successfully attained her self-hood and self reliance. She represents a New Woman who has freed herself from the constraints of tradition, society and even womanhood.

Munro's protagonist Del is shaping herself through her observations and experiences. She is a witness of submissiveness of her aunts and over-assertiveness of her mother. She has seen her mother's frustrated craving for personal accomplishments and knows that she too is like her mother but she hates her mother's show off as an intellectual. Del takes a different path of life. She has realized through her observations that neither the mute submissiveness of her aunts nor aggressiveness of her mother would support her in the journey of life. She rejects both ways - the feminine acceptance of aunts and feminist protest of her mother. In the last story *Epilogue: The Photographer* we see her developing as a creative writer who is writing about her own life and trying to give fictional rendering to her real life episodes. Munro has made her protagonist enter into male dominated area of contemporary Canada. Del is now living independently as a writer who is narrating her own life into being and exploring her own emerging self. She has attained her own self-hood.

In the process of her search of self-hood Del has gone through various experiences. She wanders through different churches and faiths and finally shifts herself from religion to sex. Sexual awakening of Del is a striking aspect in her journey towards self-hood. The stories *Lives of Girls and Women, Changes of Ceremonies* and *Baptizing* strikingly reflect Del's sexual awakening, rather evolution. Sex is supposed to be a male domain but Munro presented woman sexuality with open boldness and in the process she has given shocks to romantic notion of love and sex.

Del and her friend Naomi openly read about sex, genitals, child birth and hunt more books for detailed descriptions. They gossip about man woman relationship and day-dream about behaviors of lovers. Munro gives moral shocks to her readers and breaks the cultural codes of female virginity through Del. In the story Baptizing Del goes for all sexual experiences. She has realized that:-

Being female made you damageable, certain amount of carefulness, solemn fuss and self protection is called for, where as men were supposed to go out, take on all kinds of experiences and come back proud. (Lives-, 239).

She takes this privilege that a man has. She rejects her mother's anti-man stance. She wants to get loved by a man. In *Baptizing* she meets a truck driver named French Garnet and gets distracted over him. Their growing intimacy, play of body touch results into repeated sexual encounters. Munro describes Del's sexual adventures with striking realism and without any romantic notion. For Del sex is just a physical matter. There is no grandeur of romantic love. For her 'sex seems to be all surrender not of a woman to a man, but of a person to body' (Lives-, 239). She feels no guilt in meeting French Garnet anywhere, anytime. For that she tells lies without any guilt and neglects her studies. She is proud of taking liberty of a man of going for experience. And when the final epiphany comes, she leaves French Garnet without the slightest hesitation. When French Garnet tried to pressurize her, Del freed herself. She could not allow anybody to commit such a mistake of pressurizing her, even in play. Just five minutes back they were swimming together happily and planning about their marriage. But in a moment all was over. Del pushed him back by kicking hard and came out of the river. She never met him again in her life. Munro has shattered traditional concept of romantic love, marriage and fantasy of living happily ever after. Munro wants to emphasize that marriage is not the ultimate goal of a woman's life.

In all this episode of French Garnet Del has neglected her studies and obviously lost her scholarship, still she is not broken. She has realized that –

Future could be furnished without love, without scholarship. Now at last without fantasies or self deception, cut off from the mistakes and confusions of the past (Lives-, 264).

She is all set to start her life newly. Even after closer of one chapter of life, Munro provides her protagonist ever increasing options and makes her enter into a male dominated field of creative writing. Shelagh Wilkinson rightly remarks that –

Munro has chosen to explore the emerging self through a writer protagonist: a woman who writes herself a story, her life into being (Changing Patterns: Women in Canada, 209).

Del has broken the traditional image of a woman as 'an angel in the house' who sacrifices herself for the family. Del leaves her family, ignores her mother's falling health, father's failures and needy sibling in order to pursue her own ambitions. Munro has liberated Del from the traditional constraints of womanhood and presented her as an emancipated woman.

Conclusion:

In Canada beginning of women's struggle for equal rights was slow in comparison to the other parts of the world. New Women's Movement took momentum only in 70's. *Lives of Girls and Women* shows the reflection of beginning of woman's struggle for equal status. While depicting Del's journey towards self-attainment Munro has presented changing phases women have to go through. Initially there was unconditional acceptance of subjugation as in case of Del's aunts, and then there is self-awareness which received ridicule and frustration initially as in case of Del's mother. Finally there is Del's success. Mother is a failure but daughter has succeeded. Really the change has taken place but for that a woman has to cross many road blocks.

In short, Lives *of Girls and Women* portrays woman's journey towards her own liberation. Though Munro has repeatedly said not to attach any ideology to her writing, undoubtedly she has supported Woman's Movement through her writing.

References:

1. Munro, Alice. *Lives of Girls and Women*. Mcgraw Hill Ryerson Lt.,Ontario 1971 .
2. Vintage International, 2001. Print
3. Wikinson, Shelagh. "By and About Women". *Changing Patterns: Women in Canada.* Ed. Burt, Sandra.,Code,Lorain.and Dorney,Lindsay. McClelland and Stewart, Ontario, 1988. 205-236.

"Studies of Physico-Chemical Parameters with Special Reference to Phytoplankton of Vasantsagar Water Reservoir from Chandoli National Park"

* U. B. Chikurdekar [1], Bhusnar A. R. [2]

ABSTRACTS

The present paper deals with study of Physico-Chemical Parameters with Special Reference to Phytoplankton of Vasantsagar Water Reservoir from Chandoli National Park. Hydrobiological studies were conducted during year 2013-2014 and various Physioco- chemical parameters like Temprteture, P^H, Electrical conductivity, Total alkalinity, total hardness, Chloride, Sodium, Potassium, Nitrates, Sulfates, Phosphates, Calcium, mangnesium, Disolved oxygen were analyzed from Vasantnagar reservoir as well as seasonal variations of phytoplankton also studied. Populations of phytoplankton are directly or indirectly co-related with physico-chemical factors. A study revealed that five groups of phytoplankton were observed. Maximum phytoplankton population recorded in Mansoon & Postmansoon period.

Keywords : Phytoplantion, Water, Reservoir, Hydrobilogy, Dccurence

INTRODUCTION

Water has become scare natural resource and national wealth. It is most important component of life, without water life is highly impossible. Water is not only affect the human life but also affected on natural beauty of Ponds, Lakes, Rivers, and Reservoirs. It is universal solvent they have ability to dissolve more substance than the other liquid without undergoing any chemical changes.

Now a day disposal of sewage, industrial water, recreation activities, excess use of fertilization, pesticides, weedisides etc. human activities are increases, relatively waters pollutions also increases. Polluted water transmits thousands of diseases cause death of endangered, rare and many common wild animals, these are very harmfully affected on natural ecosystem and Biodiversity. Due to high nitrogenous west entering into fresh water bodies' eutrofications are occurs hence, many lakes, reservoir, and ponds are vanished.

In India high class people use many advanced purification apparatus for purification of drinking water. But India is developing country, maximum populations are found in rural area. Very few rural people use purified drinking water, otherwise maximum people use directly drinking water from River, Lakes, Reservoirs, Wheels etc. hence, severe diseases are formed cause, many times deaths also occurs. In generally drinking water present Iron, Calcium, Manganese, Silicon, Fluoride, Nitrite, Phosphate, Sulphate and Chlorides with suitable concentrations. When the

U. B. Chikurdekar and Bhusnar A. R.
Department of Zoology,
Yashwantrao Chavan Warana Mahavidhyalaya,
Warananagar.

concentration of these elements increases, it may be very badly affected on the plant and animal body system cause, destruction of health. Arsenic salts can create cancer, Cadmium affect on kidney while, Barium Carbonate has bad effect on veins and arteries.

In aquatic ecosystem plankton have uncountable value, it play a vital role in aquatic environment. Planktonic biomass indirectly related to the fish production. Amoung the planktonic communities; phytoplankton occupies a key position in the food chain. Phytoplankton is primary producer, it consumed by zooplankton and zooplankton provide the main food item to fishes. Diversity of planktons directly or indirectly depends on physico-chemical factors of water. Therefore, physico-chemical parameters studied with special reference to phytoplankton of Vasantsagar water reservoir from Chandoli National Park.

At national level many scientists contributed for hydrobiological studies Desikachary (1959), Philipose (1967), Verma et al., (1978), Anand (1980), Sharma & Lyngdom (2003), Pandey et al., (2004), Mishra et al., (2005), Kumar, et al., (2006), Gose & Pingaie (2007), Mane and Deshmukh (2008), etc. While at International scenario following scientist contributed to hydrobiological studies Finlay, et al. (1979), Gates, et al. (1982), Daniel (1990), Faith (1995), Edwards (2002), etc.

STUDY AREA

Vasantsagar Water Reservoir, Chandoli, Dist. Sangli, Maharashtra. The Warana irrigation Project envisages construction of a composite Dam across river Warana village Chandoli in Shirala Tahasil of Sangli District. It is one of the largest dams in Maharashtra. Warana Dam was constructed in 1986. The River Warana is a major tributary of River Krishna, it begins its course close to the Western crest of Sahyadri at a height of about 987 m above MSL. River Warana runs north to south direction on the hilltop in the sahyadri ranges.

MATERIALS AND METHODS

Water sample were collected from reservoir in two liter capacity plastic container by gently wading the container in the upper layer of the water. The analysis of temperature, dissolved oxygen, dissolved CO_2 was made on site, as they are liable to change during transport to the laboratory. For analysis of other physico-chemical parameters the samples were brought into laboratory and stored in refrigerator till the completion of analysis. Analysis was completed within 72 hr. after collection of water sample.

Phytoplanktons were collected with the help of zooplankton net. Initially about 50 liters of water sample is filtered and concentrated to 50 ml. These concentrated 50 ml samples were preserved in 4% formalin, later these sample were used for microscopic analysis.

Table No.1

Physio-chemical parameters of Vasantnagar Water reservoir from Chandoli

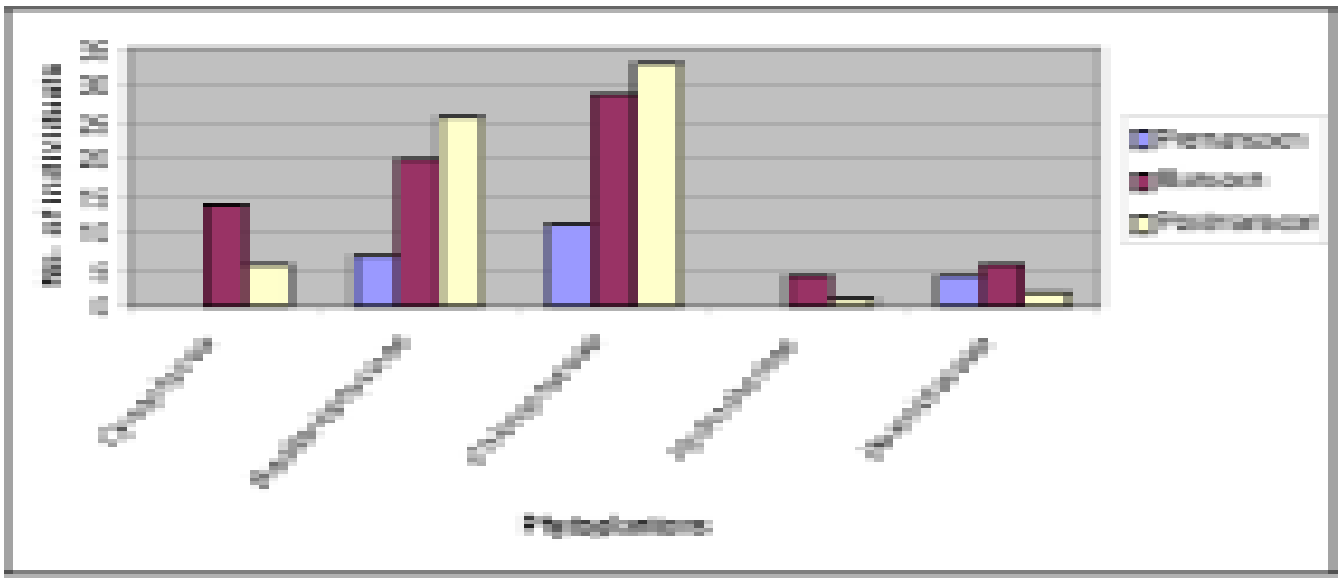
	Parameters	Jan.	Feb	Mar.	April	May	Jun	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	Air temperature (^{0}C)	24	23	28	32	34	28	26	26	26	26	27	24
2	Water temperature (^{0}C)	20	19	21	22	23	22	20	19	19	20	19	19
3	Transparency (cm)	29	28.5	30	30.5	30	27	21	23	26	27.5	29	30
4	P^H	8.24	8.26	8.60	8.78	8.96	7.24	6.91	6.26	7.67	7.26	7.90	8.16
5	E.C. (Mohos)	0.340	0.36	0.39	0.41	0.40	0.32	0.296	0.30	0.32	0.32	0.316	0.323
6	Total alkalinity (mg/lit.)	90.5	88.25	110.15	120.5	146.5	92.25	67.65	66.05	90.16	92.16	96.14	100.65
7	Total hardness (mg/lit.)	70.75	75.5	103.5	106.25	109.65	96.05	92	92.05	88.25	86.26	67.75	69.25
8	Chloride (mg/lit.)	22.36	23.6	31.25	36.15	36.25	31.5	27.16	24.25	23.14	22.05	23.25	22.16
9	Sodium (mg/lit.)	10	11	26	29	30	24	7	9	10	9	10	11
10	Potassium (mg/lit.)	2	1	1	0	0	2	3	2	2	1	2	1
11	Nitrates (mg/lit.)	0.044	0.036	0.0226	0.016	0.003	.0096	0.0013	0.0026	0.3	0.6	0.6	0.6
12	Sulphats (mg/lit.)	09	11	06	05	04	03	04	02	03	05	05	06
13	Phosphates (mg/lit.)	0.14	0.17	Nil	Nil	Nil	Nil	0.0018	0.0016	0.9	0.11	0.11	09
14	Calcium (mg/lit.)	28	29	23	23	22	27	32	31	30	30	29	28
15	Magnesium (mg/lit.)	17	15	13	13	12	12	14	12	13	112	14	16
16	DO (mg/lit.)	8.36	8.68	7.68	7.13	7.00	6.68	6.55	6.38	7	7.6	8.13	8.17

Table No.2

Occurrence of phytoplankton from study area

		Premansoon	Mansoon	Postmansoon
1	Cynophycea	Nil	14	06
2	Bacillariophyceae	07	20	26
3	Chlorophyceae	11	29	33
4	Hydrocharitae	Nil	04	01
5	Desmidiaceae	4	6	2

Fig. No.1: Graphical presentation of occurrence of phytoplankton.



RESULTS

Present work studied 16 physiochemical parameters and five group of phytoplanktonic population. These are shown in Table No.1 & Table No.2.

Temperature of Vasantsagar reservoirs is moderate type, maximum temperature are reported in month May while, minimum in month February. Transparency was recorded in range between 21 to 30.5, maximum transparency recorded in month April and minimum in month July. P^H recorded in between range 6.26 to 8.96, normal range of P^H is reported in months June to November. E.C. reported in range 0.32 to 0.41. Interestingly maximum hardness of water is recorded in months of summer and minimum in months of winter. Otherwise elements like Chloride, Calcium, Magnesium, Sodium, Potassium, Nitrates, Sulphates, Phosphates, are also reported in Vasantsagar water reservoir. Alkalinity and DO is most important part in physico-chemical parameters of water, maximum alkalinity were reported in months of summer and minimum in month of rainy season.

Phytoplankton is the important part in aquatic ecosystem. In Vasantsagar water reservoir five groups of phytoplankton's are reported i.e. Cynophycea, Bacillariophyceae, Chlorophyceae, Hydrocharitace and Desmidiaceae.

Out of five groups of planktons, Chlorophyceae were considered dominating groups, these are reported throughout the year with good numbers, maximum population was reported in postmansoon period and minimum in premansoon period (Table No.2). After Chlorophyceae, Bacillariophyceae is dominant, this group also found throughout the year and maximum population reported postmansoon period and minimum in premansoon period. Desmidiaceae group also found throught the year but population is very pure as comparative to Chlorophyceae and Bacillariophyceae. The Cynophyceae is dominant in mansoon and postmansoon period than Hydrocharitace and Desmidiaceae. This group maximum population is reported in monsoon period and minimum in postmansoon period. In premansoon Cynophyceae not reported. Hydrocharitace group is poorly reported in mansoon and postmansoon period.

DISCUSSIONS

Sharma and Singh (2013) Studied limnology from Tighra reservoir, Gwalior, Madhya Pradesh. Limnological studies were under taken to understand the correlation between physicochemical parameters and phytoplankton's of the Tighra reservoir, Gwalior, Madhya Pradesh from Novermber 2010 to Oct. 2011. They investigat, water temperature ranged from 18.4^{0}c to 35.75^{0}c, transparency ranged from 152.75 cm to 211.5 cm, conductivity from 272.5 us/cm. to 408.5 us/cm. turbidity from 5.7 NTU to 12.15 NTU, P^H from 6.55 cm to 7.72, DO ranged from 5.425 mg/lit to 8.125 mg/lit free carbon dioxide from 4.15 mg/lit to 7.5 mg/lit, total alkalinity from 53.75 mg/lit to 145.5 mg/lit., total hardness from 66.25 mg/lit to 137 mg/lit., Chlorides from 11.85 mg/lit to 39.5 mg/lit, Nitrogen from 0.29 mg/lit. to 1.57 mg/lit. All four groups of phytoplankton's, Bacillariophyceae, Chlorophyceae, Myxophyceae and Euglenophyceae were recorded through the study period. Bacillariophyceae was the most dominant of all the groups of phytoplanktons, and they revealed that phytoplankton's had positive relationship with temperature, P^H, Chloride, alkalinity, hardness and phosphate.

Watkar and Barbate (2013) studies on zooplankton diversity of River Kolar Soner, Dist. Nagpur, Maharashtra they are study of monthly variations in the zooplankton population during January 2010 to December 2010. The diversity and population dynamics of zooplankton is under the control of numerous physico-chemical factors, pollution influence, etc. study related that 28 species of zooplanktons belonging to five major groups were observed they recorded the highest zooplankton population in November to December.

In present study deals with physico-chemical parameters and phytoplankton population during year 2013-2014. We concluded that populations of phytoplankton is directly or indirectly co-related with physico-chemical factors. A study revealed that five groups of phytoplankton were observed. Maximum phytoplankton population recorded in Mansoon & Postmansoon period.

ACKNOWLEDGEMENT

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REFERENCES

1) Anand. N. (1980). Indian fresh water microalgae. Bishen Singh Mahindra Pal Singh Publishers, Dehradun.

2) Edwards,C.A.(2002).Effects of Acid Rock Drainage from the Remediated Rum Jungle Mine on the Macroinvertebrate Community Composition in the East Finniss River, Northern Territory. MSc thesis, University ofTechnology,Sydney, pp. 208.

3) Faith, D.P., P.L.Dostine, andC. L. Humphrey.1995.Detection of mining impacts on aquatic macro invertebrate communities: Results of a disturbance Experiment and the design of a multivariate BACIP monitoring programme at Coronation Hill, Northern Territory. *Australian Journal of Ecology* 20,No.1: 167 180

4) Desikachary, T. V. (1959): Cyanophyta, Indian Council of Agricultural Research, New Delhi, India; pp; 686.

5) Gose, A. B. and S. D. Pingale (2007): Physico-chemical study of Ujani dam backwater. Indian Hydrobiology; 10(1): 171-174.

6) Kumar, D. S., Sukumar, N. C., Jana, C. and M. T. Philipose, (2006): Study on Phisicochemical characteristics of Thunga River. *Phykos*; 32: 27-39.

7) Mane, U. V. and Deshmukh, A. M (2008): Phisico-chemical and Microbial characteristics of Krishna River water in Satara District. *Nature Environment and pollution Technology;* 7(2):341-344.

8) Mishra P. K., Kumar, A, Shrivastava, J. and S. K. Ray (2005): Some fresh water filaments Chlorophyceae algae from district Balrampur, Uttar Pradesh, India. *Eco: Environment and Conservation*; 11 (3-4); 429-431.

9) Pandey, B. N., Husain, S., Ambastha, O. P. and S. P. Poddark (2004): Phytoplankton and its correlation with certain physico-chemical parameters of Ramjan River at Kisangani, Bihar. *Environment and Ecology*; 22(4): 804-809.

10) Philipose, M. T. (1967): Chlorococcales. Indian Council of Agricultural Research, New Delhi, India.; pp; 345.

11) Sharma Dushyant Kumar & R. P. Singh, (2013): Correlation between physico-chemical parameters and phytoplanktons of Tighra reservoir, Gwalior Madhya Pradesh, *I.J.S.N.* Vol. 4 (1), 2013 : 90-93

12) Verma, S. R., Tyagi, A. R. And dalella, R. C. (1978)Physico-chemical and biological characteristics of karadabad drain in U.P. *Inaian j. Environment Health.*20(1);1-13

13) Watkar, A. M. and M.P. Bahrbe (2013), Studies on zooplankton Diversity of River Kolar, Soner, Dist. Nagpur, Maharashtra *Jour lit. scien and Tech.*, vol.11. *and Pollution Technology*; 7(2): 341-344.

14) Finlay,B.J., J. Laybourn, and I. Strachan. 1979. A technique for the enumeration of benthic ciliated protozoa. *Oecologia* 39: 375-377.

15) Gates, M. A., A. Rogerson, and J. Berger. 1982. Dry to wet weight biomass conversion constant for Tetrahymena elliotti(Ciliophora, Protozoa). *Oecologia* 55: 145-148.

16) Daniel M. Alongi (1990) Abundances of benthic microfauna in relation to outwelling of mangrove detritus in a tropical coastal region, *Marine Ecology Progress Series* 63: 53-63.

STUDIES ON *ex situ* CONSERVATION OF BIODIVERSITY IN BOTANICAL GARDENS: A CASE STUDY OF WARANA MAHAVIDYALAYA BOTANICAL GARDEN

* S. S. Khot[1], S. Y. Jadhav[2], Miss S. V. Kate[3] & Miss S. B. Bhakare[4]

ABSTRACT

Plants are significant part of world's biodiversity and an essential resource of food, fodder, fuel, medicine etc. India has 45,500 species of plants and 300 wild ancestors of crop plants. Conservation of this plant diversity is a need of time. Botanical gardens play key role in *ex situ* conservation of plant biodiversity. Present research deals with biodiversity of the Botanical garden of Y. C. Warana Mahavidyalaya and its role in conservation of biodiversity and in environmental awareness.

The study showed that the Warana Mahavidyalaya Botanical garden supported 170 angiosperms belonging to 66 families and 8 species of gymnosperms belonging to 6 families in addition to many seasonal plants. Cryptogams included 6 algae, 7 bryophytes and 9 pteridophyte species. This phyto-diversity included many medicinal plants. Studies further showed 16 species of birds and many insects.

The botanical garden was visited by 370 students of high-school, 700 students of UG, and more than 250 students of Pharmacy and Engineering. This arboretum was utilized for education and research by teachers, parents and society.

Key Words: Botanical Garden, biodiversity, conservation, Warananagar

INTRODUCTION

Botanical gardens are known to play important role in cultivation and conservation of plants along with other Gardens, parks and Devraies. The plants which are botanically important and included in study of life sciences are cultivated in the Botanical gardens. These gardens are maintained by Research Institutions, Universities and Science Colleges. 'Indian Botanical Garden, Kolkata' spread over 109 hectares is India's largest botanical garden.

Botanical gardens include naturally growing plants as well as specially grown plants, like succulents and cacti, hydrophytes, palms, exotic plants, conifers, endemic, ornamental plants etc. The origin of modern botanical gardens can be traced back to 16th century. It conserves wide variety of plants which help in conservation of many insects and birds. According to Ministry of Environment and Forests, India has 45,500 species of plants and 300 wild ancestors of crop plants.

Kolhapur District is situated on the Eastern side of Western Ghats. It shelters 2,227 plant species belonging to 1023 genera and 182 families. Out of these over 600 plant species are reported to be medicinally important. The region is rich in phyto-diversity and comprises 340 endemic, 136 threatened and 52 vulnerable plant species.

Warananagar is one of the important towns of Kolhapur which is centre of education, dairy industry, sugar industry, distillery and market. Warana Mahavidyalaya Botanical garden is one of the 5 planned gardens present in Warananagar. Many medicinal, ornamental and endemic plant species are cultivated in this garden. Present study deals with role of the botanical garden in conservation of plant diversity and bird diversity and also in creating social awareness about it.

MATERIAL AND METHODS

The diversity of plants and birds was studied by arranging frequent visits for one year to the Botanical garden of the Y. C. Warana Mahavidyalaya, Warananagar, situated in Western Ghats (Sahyadri ranges) at 16.854535 N and

S. S. Khot*, S. Y. Jadhav, Miss S. V. Kate and Miss S. B. Bhakare
Yashwantrao Chavan Warana Mahavidyalaya, Warananagar – 416 113
Tal – Panhala, Dist – Kolhapur, MAHARASHTRA, INDIA
e-mail: skhot1976@gmail.com

74.197676 N in Kolhapur district (Maharashtra). Plants were identified and classified using Flora of Presidency of Bombay (Cooke, 1906), Flora of Kolhapur District (Yadav and Sardesai, 2002) and Flower's of Sahyadri (Ingalhalikar, 2008) . Birds were identified with the help of experts. Role of garden in *ex situ* conservation was studied by identifying status of various species and their significance. Role of the botanical garden in social awareness was studies by noting number of stake holder visited to the garden.

RESULTS AND DISCUSSION

It is 585 m above MSL. The average rain fall is 39.31 inch (998.5mm), and the soil type is red alluvial. The garden was established in 1970 over 1 acre land. It was estimated to support 380 plant species. The location and present condition of the botanical garden is shown in the fig.1 and 2.

Fig. 1. Wide view of Warana Mahavidyalaya Botanical Garden, Warananagar.

Fig. 2. Close up of the botanical garden

The studies on cryptograms (Table 1.) showed that there were 6 algae in the pond, 7 bryophytes and 9 pteridophytes. Bryophytes involved seasonal plants namely *Riccia*, *Anthoceros*, *Funaria*, *Polytrichum*, *Cyathodium* and moss. Perennials pteridophytes viz., *Nephrolepis*, *Pteris*, *Adiantum* and *Acrosticum* were established well near water tank in the garden. Species of *Selaginella* and *Marsilea* were cultivated in soil pots.

The present studies carried out for over one year duration showed presence of 170 angiosperm plants belonging to 66 families and 8 gymnosperms of 6 families (Table 2). These angiosperms include 137 dicot plants belonging to 52 families and 33 monocots of 14 families (Table 3 and 4). In addition to them, many seasonal weeds enriched the diversity. Occurrence of 16 individuals of Cycas with the age of more than 40 years is a characteristic feature of this garden. The gymnosperms include *Cycas revoluta, Cycas circinnalis, Zamia spp., Thuja spp., Araucaria spp., Podocarpus spp., Pinus spp., and Cupressus species.* Species of *Podocarpus, Pinus* and *Cupressus* were commonly occurs at high altitude (Pandey, 2004). Most of the plants are medicinally important.

There were 16 species of birds (Table 5). Common birds were sparrow, sunbird, black drongo, koyal, kingfisher, crow, red vented bulbul, yellow browed bulbul, tailor bird, maina, pigeon, grey heron etc. Many insects like various butterflies, bees, beetles were observed on various plants in the garden. Incidence of 'Hitler bug' was recorded on *Gmelina arborea* plant. and many insects.

Botanical Garden is one of the assets of the Mahavidyalaya and used as treasure of biodiversity. Attempts were made to popularize the garden among the stakeholders. For convenience of the visitors, the map of the botanical garden has been drawn on a wall of Department of Botany with the name of plant and its location in the garden. As a result, the garden was visited by about 400 students of Science and more than 300 students of other faculties. It was visited by more than 280 students of D.Pharm. and B. Pharm. and Engineering Biotechnology. Number of high school students was 370 and of teacher were 15 who visited the garden. Few of the local schools had also visited the garden with students as a study tour.

Table 1. Diversity of cryptogams in the Botanical Garden

Group of plants	Algae	Bryophytes	Pteridophytes
No. of species	06	07	09

Table 2. Diversity of phanerogams in the Botanical Garden

Group of Plants	Gymnosperms	Angiosperms		Total No.
		Dicotyledonous	Monocotyledonous	
No. of Species	08	137	33	178
No. of Families	06	52	14	74

Table 3. List of dicot plant showing number of species and their families growing in the Botanical Garden (Total Number of species=137)

Sr. No.	Name of Family	No. of Species	Sr. No.	Name of Family	No. of Species
1	*Dilleniaceae*	*1*	**27**	*Myrtaceae*	*2*
2	*Anonaceae*	*5*	**28**	*Lythraceae*	*2*
3	*Bixaceae*	*1*	**29**	*Cactaceae*	*2*
4	*Guttiferae*	*3*	**30**	*Melastomaceae*	*1*
5	*Malvaceae*	*2*	**31**	*Rubiaceae*	*2*
6	*Bombacaceae*	*4*	**32**	*Rutaceae*	*1*
7	*Sterculiaceae*	*5*	**33**	*Plumbaginaceae*	*1*
8	*Tiliaceae*	*1*	**34**	*Sapotaceae*	*4*
9	*Malpigiaceae*	*1*	**35**	*Ebenaceae*	*1*

Sr. No.	Name of Family	No. of Species	Sr. No.	Name of Family	No. of Species
10	*Oxalidaceas*	*1*	**36**	*Oleaceae*	*1*
11	*Scrophulariaceae*	*2*	**37**	*Apocynaceae*	*8*
12	*Rutaceae*	*4*	**38**	*Asclepiadaceae*	*1*
13	*Simarubeaceae*	*2*	**39**	*Boraginaceae*	*1*
14	*Meliaceae*	*3*	**40**	*Solanaceae*	*2*
15	*Rhamnaceae*	*1*	**41**	*Bignoniaceae*	*7*
16	*Sapindaceae*	*3*	**42**	*Acanthaceae*	*2*
17	*Anacardiaceae*	*2*	**43**	*Verbenaceae*	*8*
18	*Moringaceae*	*1*	**44**	*Lamiaceae*	*2*
19	*Acanthaceae*	*1*	**45**	*Nyctaginaceae*	*1*
20	*Fabaceae*	*2*	**46**	*Polygonaceae*	*2*
21	*Caesalviniacae*	*8*	**47**	*Elaeagnaceae*	*1*
22	*Mimosaceae*	*6*	**48**	*Santalaceae*	*1*
23	*Rubiaceae*	*1*	**49**	*Euphorbiaceae*	*11*
24	*Crassulaceae*	*2*	**50**	*Urticaceae*	*5*
25	*Verbenaceae*	*1*	**51**	*Moraceae*	*2*
26	*Combretaceae*	*2*	**52**	*Casuarinaceae*	*1*

Table 4. List of monocot plant showing number of species and their families growing in the Botanical Garden (Total Number of species=33)

Sr. No.	Name of Family	No. of Species	Sr. No.	Name of Family	No. of Species
1	Orchidaceae	1	**8**	Liliaceae	5
2	Zingiberaceae	3	**9**	Palmae	6
3	Musaceae	1	**10**	Pandanaceae	2
4	Scitaminaceae	1	**11**	Araceae	3
5	Bromeliaceae	1	**12**	Commelinaceae	2
6	Amaryllidaceae	4	**13**	Poaceae	2
7	Dioscoriaceae	1	**14**	Apiaceae	1

Table 5. Birds observed in the Botanical Garden

Sr. No.	Name	Common name
1	Sparrow	Chimani
2	Sunbird	Sunbird
3	Hornbill	Rakhi Dhanesh
4	Black Drongo	Kotval
5	Koyal	Kokila
6	Kingfisher	Khandya
7	Crow	Kawala
8	Red vented Bulbul	Red vented Bulbul
9	Tailor Bird	Shimpi
10	Maina	Salunkhi
11	Iora	Iora
12	Pigeon	Kabutar , Parava
13	Roseringed Parakeet	Popat, parrot
14	Owl	Ghubad
15	Yellow browed bulbul	Yellow browed bulbul
16	Grey Heron	Bagala

CONCLUSION

Y. C. Warana Mahavidyalaya Botanical garden, Warananagar should be preserved as a treasury of plants. It is playing significant role in conservation of biodiversity and creating awareness among the stakeholders of education. More efforts should be taken to cultivate the plants which are endemic to Western Ghats and which are enlisted in the Red Data Book.

REFRENCES:

1. Cooke T. (1906). Flora of the presidency of Bombay, *Botanical Survey of India, Calcutta.*

2. Yadav S. R. and Sardesai N. (2002). Flora of Kolhapur district, *Shivaji University Press, Kolhapur.*

3. Ingalhalikar S. (2008). Flowers of Sahyadri, Corolla Publications, Pune, India.

4. Gazetteer of India (Maharastra) by P. Setu Madhava Rao (1961).

5. Singh et al (2001) Floristic account of monocotyledons & dicotyledones of Maharashtra state

"Socio-Economic Condition of Kekhale Village : A Geographical Study."

* **Prakash Soudagar Raut**

Abstracts

The economic structure gives an idea about the economic status of the village. The economic structure of both Kekhale and Vaibhavnagar is moderate. It studies economic condition of agricultural activities on which village depend. Generally tradition equipments are used but modern means like tractor is used rarely. Pumps for irrigation facility are used all over in the village. People from the village use fertilizer, insecticides and pesticides in their farms. Demographic aspects are very important for the scenario of population. The population determined the basic capacity of village improvement. If the number of people is more, it will increase the working capacity of the population, needs for the education development. There are some basic characteristic which are important for the study so as to understand the socio-economic condition of Kekhale village.

Key Wards: Socio-Economic, Crops, Religion, Landuse Pattern, Standard of living

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1. Introduction:

Kekhale is a village located in Panhala Taluka of Kolhapur District. It is 25 Kms from Kolhapur towards north and 15 Kms from Panhala. 90 percent population of this village is engaged in agriculture sector and 10 percent is dependent upon the other activities like poultry, farming, and cattle rearing. Very few people are engaged in secondary type of occupation like provision shops. Few people are working in industry and few are government servants. Farming is the main occupation of the villagers. Women also help in farming and Dairy farming. Some works in their own farms as well as some works on daily wages. Women literacy is medium in the village. Many people are working in Warana Industrial and education complex. Rice, Sugarcane, Groundnut Wheat are the major cultivated crops. During monsoon the village receives heavy rainfall. Irrigation facility is available which is very rich because of Warana River.

2. Objectives:

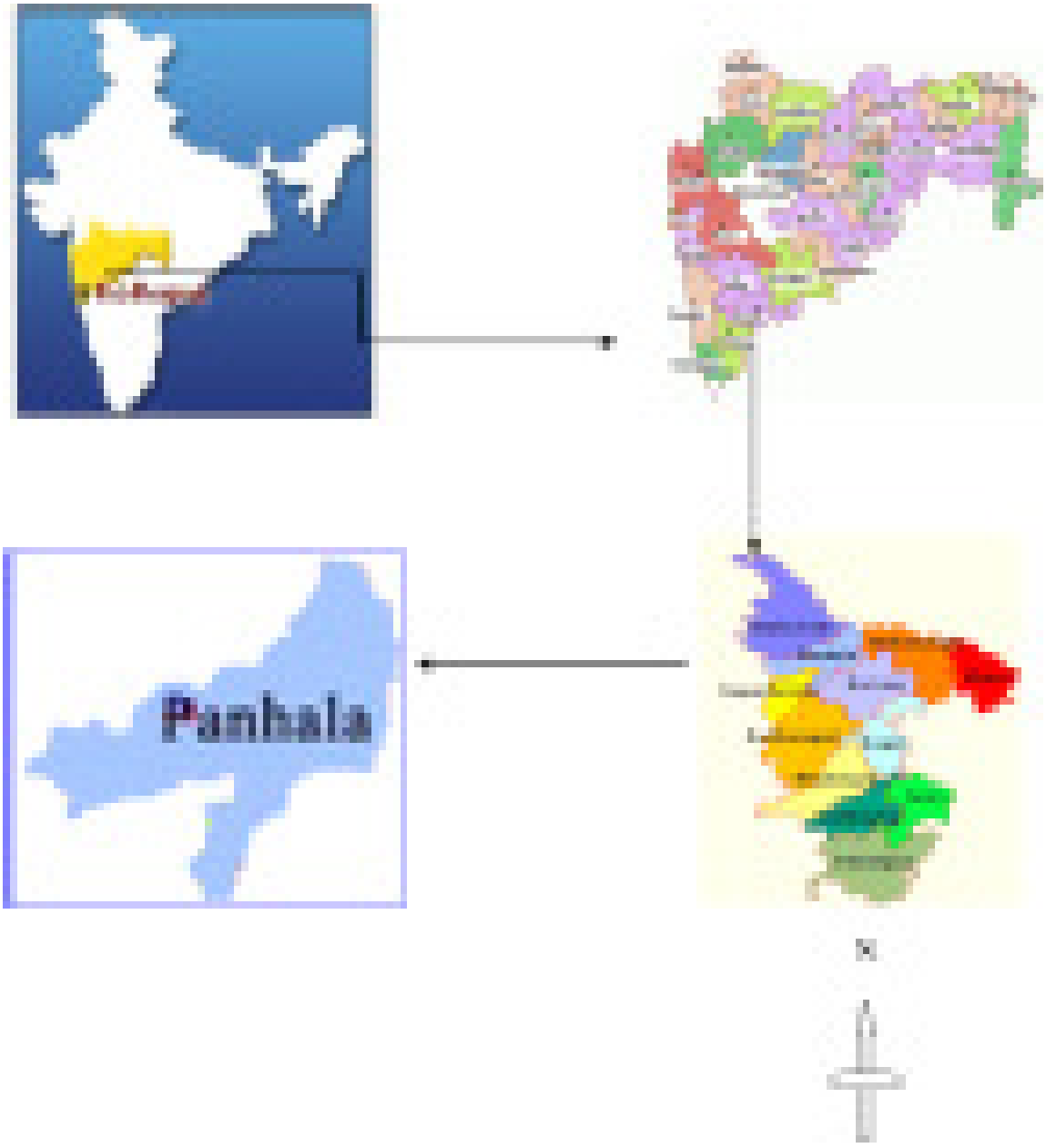
1. To study the Socio-economic condition of Kekhale.
2. To study the standard of living of Kekhale.

3. Study Region:

Kekhale village is located in Panhala Taluka of Kolhapur district. Its absolute geographical location is 16° 45á North latitude to 74° 10á East longitudes. The average height of village Kekhale is 591meters from mean sea level. The village is bounded by the Sahyadri on the west, Warana River on the north. It covers an area of 722.83 in hectares. The total population of in the village is 3686 (2011) .This small village population 3686 is distributed among 410 families

Dr. Prakash Soudagar Raut
Head & Assistant Professor, Department of Geography
Yashwantrao Chavan Warana Mahavidyalaya Warananagar,
Taluka-Panhala.
District-Kolhapur. Pin Code: 416113

Location Map of Kekhale Village



4. Data Base and Methodology:

1. The present work is mainly based on primary source of data.
2. The discussion and observation methods are also used for necessary data.
3. Field study has been organized in the village.
4. Collection of secondary data is done from various officers in the village.

5. Physical set up of the village:

The physiographic of any region affects the weather condition and natural vegetation. The village Kekhale is located on the right bank of the Warana River. Physiographical the village is situated on the Deccan Plateau with elevation of 591 meters from mean sea level with undulating surface. Geographically Kekhale is blessed

with pleasant climate throughout the year. The village Kekhale experiences moderate rainfall during four months and other eight months are dry. The average annual rainfall is around 78cm and most of the rainfall is in monsoon season. Generally the temperature ranges between15 to 35 degree Celsius. In summer the maximum temperature even reaches 39 degree Celsius. May is a month of maximum temperature.

6. Socio-Economic Condition

The Socio- Economic Condition Included following indicators **:** Education Facilities, Status of Women, Language, Social Structure, Occupational Structure, Village festivals, Medical facility, Standard of living, Food habit, Communication facilities, Market, Cultural activities and Economic Structure.

6.1 Educational Facilities:-

The development of Kekhale depends on the education facility. On educational field it is developing area. It has pre-primary school and primary school. Pre-primary school has 01 teacher which is female and primary school has 12 teachers which are both males and females. For further studies students go to 'Warananagar' head quarter of warana industrial and educational complex.

6.2 Status of Women:-

The status of women is increased due to education and literacy. As it is said that, if women in the family is literate, whole family becomes educated, Village women are many working in farms. Some work in their own farms as well as some works on daily wages. Women literacy is medium in the village. The 65.15 percent of females are literate in the village.

6.3 Language:-

The Kekhale village is situated in Maharashtra so the Marathi is the only language used. Marathi language is the mother tongue in all the surveyed families.

7. Social Structure:

a) Religion:-

The dominant religion found in the village is Hindu. The people living in the Kekhale and Vaibhavnagar belong to Hindu and Buddhism religion.

b) Caste Structure:-

Sr. No.	Types of Religion	Total No. of religion in Percentage
1	Open	90.2
2	S.C.	02.8
3	Other	07.0

(Source -Form the field survey)

The people living in this village mostly belong to open caste which 90.2% Next to that 2.8% people belongs to S.C. category. Other category people are in minority.

c) Occupational structure:-

The major occupation is agriculture as 90 percent people are engaged in the agriculture, while other Occupations are poultry farming, cattle rearing etc. are observed. Very few people are engaged in secondary type of occupation like provision shops. Few people are working in Industry & few are government servants.

d) Village Festivals:-

Kekhale celebrate all Hindu festivals like Ganesh utsav, Gokulashtami, Holi, Diwali, Navratri etc. Hanuman Jayanti is celebrated in the month of April.

8) Medical Festivals:

The medical facilities are available in this village. The primary health centre as government facility and private dispensary is available in Kekhale. 01 Private medical shop is also available in this Village.

9) Standard of Living:

The standard of living in the Kekhale is moderate because most of the people in village are farmer .Very few people are working in the warana industrial and educational complex. Most of the villagers have T.V and Radio, while only 73 families have refrigerator in their houses. Few families have telephone connections but the most of the villagers i.e. about 197 families have mobile connections. Only 08 families have computers in their houses and very few people i.e. only 5 families have washing machines.

10) Food Habit:

On an average of the people consume simple meal. The daily meal consists of jawar bhakari, milk, vegetables, rice etc. but wheat and jawar are important food grains. The Villagers occasionally eat non-vegetarian food. The villagers used to grow vegetables in their farm so they do not depend upon market for their daily requirement of vegetables.

11) Communication Facilities

Post and Telegraph office is not available in this village but it is available in Warananagar. Telephone connection is available in Kekhale. Only one BSNL office is located in the village.

12) Market:

Weekly market is available in this village. So for the daily market the villagers go to Warananagar and Kodoli. Farmers often go to Warananagar and Kodoli to sell their yields.

13) Cultural Activities:

As a small village of Maharashtra, this village Kekhale also shows the custom and tradition of a peculiar small village. In Kekhale and Vaibhavnagar villagers celebrate Ganesh festival as social gathering; other social activities like Bhajani mandals, Ganpati mandals are there in this village.

14) Facilities Available In the Village:

Sr. No.	Facilities	Yes or No
1	Pre-primary School	01
2	Primary School	01
3	Secondary School	No
4	Provisional Store	10
5	Post office	No
6	Mosque	No
7	Temple	Yes
8	Water Tank	02
9	Primary Rural Hospital	01
10	Hotel	02
11	Ration Shop	01

(Source -Form the field survey)

15) Road and Transportation:

There is a facility of cart track, unmetalled road in the village. The common modes are of transportation bullock cart, bicycle, motor bikes, cars S. T. Bus. By these networks Kekhale is connected toWarananagar, Kodoli, Panhala and Kolhapur. The private transportation facility is not available in Kekhale.

16) Land use Pattern:

The land use pattern reveals the level of economic development of village. Villagers cultivated crops for their self consumption and remaining is sold in market. This pattern is mostly used for agriculture purpose to know the percentage of arable land and non- arable land and also to know crops combination and is the main way to understand the main crops of arable land. Following table shows the utilization of the land in different sector. The total geographical area of village Kekhale722.83 in hectare and entire area has been divided into following categories.

Land use Pattern

Sr.No.	Use of Land	Area in hectare
1	Agriculture	645.71
2	Area not available for Agriculture	77.12
3	Total area	722.83

(Source -Form the field survey)

16.1 Area under Agriculture:

In village area, under agriculture is 645.71 hectare. The major crops are Sugar cane, Wheat, Rice, Groundnut and Jawar, while another crop is Onion, Davana. Oil seeds and vegetables. Other crops used for own survival by villagers.

16.2 Fallow land:

In Kekhale village 77.12 hectare area is not available of agriculture.

17) Crops:

Agriculture is the main activity of the people. The main crops in the farm are Sugar cane and Rice, while supporting crops such as Wheat, Jawar, Groundnut, Onion, Davana, Oil seeds and vegetables etc.

Crops Cultivated

Sr.No.	Types of crops	Total Area (hectares)	Percentage
1	Sugar cane	335	51.88
2	Rice	95	14.71
3	Jawar	65.20	10.09
4	Groundnut	60.30	09.33
5	Wheat	45	06.96
6	Other	45.21	07.03
7	Total	645.71	100

(Source -Form the field survey)

17) Economic Structure:

Economic structure gives an idea about the economic status of the people. The economic structure of both Kekhale and Vaibhavnagar is moderate. It studies economic condition of agricultural activities on which village depend. Generally traditional equipments are used but modern means like tractor is used rarely. Pumps for irrigation facility are used all over in the village. People from the village use fertilizers, insecticides and pesticides in their farms.

18) Conclusions:

The village is small and convenient for socio economic study. So, on the basis of the socio-economic condition some observation found are in Kekhale which are as follows.

1) The Kekhale village is sparsely populated. The villagers are having moderate socio-economic condition.
2) The facilities for amenities are not satisfactory level. The facilities available in the village are electricity, road and primary school etc. but the villagers do not have the facility of higher education.
3) There is no proper road and transport facility in the village. People either use their own bullock- cart or often they go by walking. There are two wheelers in the entire village.
4) The literacy rate is 61 percent. It reveals that people are literate in the village.
5) Farming is the main occupation of the village. Women also help in the farming. Rice and Sugar cane are the major cultivated crops. During monsoon the village receives heavy rainfall. Irrigation facilities are available which are very rich because of Warana River.

18) References:

1) Majid Hussain. (1999): Principal of Human Geography, Jaipur, Rawat Publication.
2) Sharma. T. C. (2007) Economic Geography of India, New Delhi, Vikas Publishing House Pvt, Ltd.
3) Handbook of Kolhapur District,2012.
4) Location Map – Google Earth (Internet)
5) The Field Survey Report of 2012.

WOMEN RULE IN POLITICS

* Dhede D.R.

ABSTRACT

Women play significant role in all fields. In the same way, they have proven their contribution in politics also through their movements as a voter as well as representative of different constituencies.

In our countries parliamentary (Loksabha) and Rajyasabha are the most important auditorious. In there top most offices, Women played pivotal roles. There are 545 seats of (Lokshabha) in parliamentary in our country. In 2009, 46 women entered into the parliamentary office. But as per the 35% reservation. There should have been exactly 180 women.

In Rajyasabha, there are 250 seats. Out of 250 seats, 18 seats have been occupied by the women. As per the 33% reservation, there should have been 83 women.

In Maharashtra, there are 288 seats in Assembly. Out of that 12 are women. As per the 33% reservation the number of women representative reaches upto 96. In legislative council the number of women representative is 78. In this current situation out of 78 members, only 5 women were elected. As per the 33% reservation, the number of women representatives reaches upto 26. Moreover, there are two women ministers in Maharashtra government.

In 2009, almost 1951 women were activities in on members in Distric council in Maharashtra. Out of that (ie 1951) 75 women were froms scheduled caste whereas 49 women were from scheduled tribes. Moreover 17 women got an opportunity to become the president of the District Council. Out of 17 women presidents, 7 women were from Backward class and two were from scheduled tribes. Due to women's reservation. Women from SC as well as ST communities have got a chance to became president of district council as well as a member of any local swarajya institution.

In short, they would enhance their knowledge, power and potential. Almost 116 women were president of District council, out of 116 women presidents 19 and 13 women were from scheduled castes and scheduled tribes respectively. On moreover, almost 3902 women were the members of the Panchayat committee. Out of 3902 women members, of the panchayat committee. Out of 3902 women members, as 176 and 149 women were from SC and ST community respectively. 976 women were members from open category and 814 were the presidents from open category. In brief almost all areas, women have shown their importance in terms of politics as well as other fields.

Keywords :

Women Rule, Politics, Parliamentary, Assembly, Legislative Council, Rajyasabha, Zilha Parishad, Panchayat Sammitti, Grampanchayat, Sarpanch Reservation.

Dr. Dhede D.R.
Assi.Professor & HOD,
Department of Economics
Y.C.Warana Mahavidyalaya, Warananagar

INTRODUCTION

Women play significant role in all fields. In the same way, they have proven their contribution in politics also through their movements as a voter as well as representative of different constituencies.

Earlier, there was only the women's movement on page but later many political activists supported the women's participation in politics. The main intention behind this policy is to avoid gender discrimination. From the society and the guitel motivate them to work as mush as possible. In another words women's through process would help the others to take strong decision in the politics. There are another groups who try to change the scenario and make it realistic.

In 1990s and later, there was full supports for women' reservation who were elected in private institution. It was continued relentlessly. Women political knowledge level has been checked by the committee. The appointed committee came to the conclusion that women representatives have been decreasing day-by day, after the proper analysis, the decisions of political parties to avoid the women representative from election, restrictions which have been imposed by the male dominated institutions, and discriminations between Men and Women. At punchayat level, it has been recommended that there should be 1/3 reservation for women. In that decision, which has been taken by the government that there should be 30% reservation for women at Panchayat level as well as district level (District Parishad). In 1993 as per the amendment of 73rd and 74th, constitutional grants and status have been give to the local level (Panchayat) and city level (Muncipalty).

The government of Manmohan Singh has been finalized on 27-8-2009 that 33% reservation to the women has been implemented in Gram Panchayat Tahshil, Panchayat District Level.

OBJECTIVES OF THE RESEARCH

1) To study The Women Rule in parliamentary and Rajyasabha in our Country.
2) To study the the Women Rule in Legislative Council and Assembly in Maharashtgra.
3) To study the Women Rule in District Council (Zilha Parishad) in Maharashtra.
4) To study Women Rule in Panchayat Committee (Sammiti) in Maharashtra.
5) To study the Women Rule in Grampanchayat who ade on the post of Sarpanch in Maharashtra.

HYPOTHESIS

Women have proved their importance in all areas, sectors such as village, Tahshil, District, State and Country. That's why there is women rule in our country.

METHODOLOGY

The present paper has been written on the 'Women Rule' in politics. All the areas have been studied in terms of Women Rule. That is to say, The women rule has been developed in village, Tahshil, District, State aned Country. All areas have been studied and analyzed properly. The required data have been provided accurately. The present paper is totally based on secondary data.

The present research paper is glance on the all the counsile from state as well as country in terms of women rule.

WOMEN RULE ON THE WORLD LEVEL

It is important to study the contribution of the women representative in management at the World level. Moreover, it is important to check how many women have been participating and their way of tacking all political decision. In 1995, only three women representative were elected in all 26 Nations parliamentary. Whereas, in 2009, there were only cess women representatives in 187 Nations. There was only one nation named 'Khando' which was exception. In that nations parliament 56.3% women representatives were elected in a proper channel. In 2008, the percentage, in terms of all over World women presidents was 4.7% on 16% posts of ministers have been given to

women, in all over the World. The details, related to the women, Rule in other areas, have been mentioned in the following table.

Table No.1

Women Rule on the World Level

Sr.No.	Name of Women	Country	Duration	Designation
1	Sirima Bendernayake	Shrilanka	1960-65	Prime Minister (P.M.)
2	Indira Gandhi	India	1960-67	P.M.
			1980-84	P.M.
3	Golda Myre	Istrail	1969-74	P.M.
4	Elizabeth Domishion	Mid African Republication	1975-76	P.M.
5	Lusida da Kosta	Netherland	1977	P.M.
6	Mariya Ebol Peron	Arjentina	1974-76	President
7	Smt.Pratibhatai Patil	India	2008-13	President

Table No.1 shows that there are some Nations where women are Prime-Minister or Presidents. In our country of foreign countries, women have been playing significant role. In the development of country. Women's contribution is pralweworthy especially Indira Gandhi become 1st Prime-Minister of India. Indira Gandhi's duration of as Prime-Minister was 1960-67 and 1980-84. She skillfully tackled all the areas and could succeed in her plan. Later Mrs. Pratibhatai Patil become the 1st women president of India. In the some way, in other countries like, Shrilanka, Istrail Mit African Republication, Netherland, Arjentina, Mangolia etc. women became Prime Minister as well as presidents.

WOMEN RULE IN PARLIMENTARY AND RAJYASABHA IN OUR COUNTRY

In our countries parliamentary (Loksabha) and Rajyasabha are the most important auditorious. In there top most offices, Women played pivotal roles. There are 545 seats of (Lokshabha) in parliamentary in our country. In 2009, 46 women entered into the parliamentary office. But as per the 35% reservation. There should have been exactly 180 women.

In Rajyasabha, there are 250 seats. Out of 250 seats, 18 seats have been occupied by the women. As per the 33% reservation, there should have been 83 women. In short, in women representatives have reached both the house (ie Loksabha and Rajyasabha) and proved their importance. Therefore, their contribution for decision making is valuable.

It is apparent that since 1st collective election women candidates are in less number. It is everyone's duty to strengthen that number day by day. Unitl and unless the women's participation and contribution increase till that womens it would be full and void to hope women's development. Women's contribution in decision making is important. Then and then only women's participation in politics is valuable, otherwise it would be worthless. Due to reservation, women are tring to participate activiey and show their potential in terms of politics.

WOMEN RULE ASSEMBLY AND LIGISLATIVE COUNCIL (VIDHAN PARISHAD) IN MAHARASHTRA

In both houses ie Assembly and legistative council women have achieved their places and they plays pivotal role in decision making. That's why women have got an opportunity to develop themselves politically as well as socially step by step, women are becoming strong and eligible to do any difficult task.

In Maharashtra, there are 288 seats in Assembly. Out of that 12 are women. As per the 33% reservation the number of women representative reaches upto 96. In legislative council the number of women representative is 78. In

this current situation out of 78 members, only 5 women were elected. As per the 33% reservation, the number of women representatives reaches upto 26. Moreover, there are two women ministers in Maharashtra government. In a nut shell in Maharashtra, women representative have entered in both houses ie Assembly and Legislative council. There take important role in the decision making as well as states development. Due to the reason women have been empowered. In other words, women have achieved significant posts in both houses ie Assembly and legislative council. They have been proceeding their tasks successfully.

WOMEN RULE IN DISTRIC COUNCIL (DISTRICT PARISHAD) IN MAHARASHTRA

Local Swarajya Institution is the third step of the government process. It includes District council (Zillha Parishad), Panchayat Committee and Grampanchayat. In these levels, women have been playing important role as chairpersion, member or as activity, Due to that all backward class women have got good opportunities to develop themselves continuously. As a result, women have become empowered as well as capable to do all tasks on their own.

In 2009, almost 1951 women were activities in on members in Distric council in Maharashtra. Out of that (ie 1951) 75 women were froms scheduled caste whereas 49 women were from scheduled tribes. Moreover 17 women got an opportunity to become the president of the District Council. Out of 17 women presidents, 7 women were from Backward class and two were from scheduled tribes. Due to women's reservation. Women from SC as well as ST communities have got a chance to became president of district council as well as a member of any local swarajya institution. To sum up women have shown their importance in third step of government process ie District council.

WOMEN RULE IN PANCHAYAT COMMITTEES (SAMITTEE) IN MAHARASHTRA

In 1959, Balwantrao Mehata's committee recommended that there must be at least 2 women condidater in on members panchayat committee. In 1989, the bill has been finalized that there must be 30% reservcation to women. It has been mentioned in 64th constitutional amendment and submitted in parliament. In September 1991 the some bill was submitted and corrected in 73rd & 79 th amendment and added that there must be 1/3 reservation for women's perstentship. This bill was sanctioned in December 1990. Therefore women got a chance to become president of any institution or District Council. The details of women rule in Panchayat Committee have been mentioned in the following table.

Table No.2

Women Rule in Panchayat Committee (2009)

Sr.No.	Types of Members	Total Posts
1	Total members	3902
2	Total women presidents	116
3	Women from schedules caste	176
4	Women from scheduled tribes	149
5	Women from open category	976
6	Women presidents from SC	19
7	Women president from ST	13
8	Women president from Open	814

Ref. Daily Lokmat, Kolhapur District Edition Date 29.3.2009

Table No.2 clearly shows that in Maharashtra women have granted almost all areas with their confidence and potential. That is to say in District council, women have become. Members as well as presidents of the group Panchayat, District council. It could happen only because of the women's reservation. Due to reservation women,

women from all categories (SC, ST, OBC, Open) have got an opportunity to became member as president of any local institution, District council. They could an opportunity to become Sarpanch of the any village. In short, they would enhance their knowledge, power and potential. Almost 116 women were president of District council, out of 116 women presidents 19 and 13 women were from scheduled castes and scheduled tribes respectively. On moreover, almost 3902 women were the members of the Panchayat committee. Out of 3902 women members, of the panchayat committee. Out of 3902 women members, as 176 and 149 women were from SC and ST community respectively. 976 women were members from open category and 814 were the presidents from open category. In brief almost all areas, women have shown their importance in terms of politics as well as other fields. They started taking important decisions in institution or district council or in panchayat committee.

WOMEN RULE IN GRAMPANCHAYAT AS SARPANCH IN MAHARASHTRA

The last step of the local swarajya institution is Grampanchayat. For the sake of the maintaining the development of the village, there remains a body of 6 members (at least) for five years this body are elected by the villagers to give them all facilities from government. Out of those members one peron is selected as Sarpanch of the village.

The main point is that, women have grabbed the post of Sarpanch of the village. It could happen only because of women's reservation. Even all women from all categories would get a change to become Sarpanch of the village. That is what all category women have proved it the detail, related to the post of Sarpanch which was achieved by women from all category, have mentioned in the following table.

Table No.3

Women from various categories and post of Sarpanch

Sr.No.	Women from different castes	Number of post of Sarpanch
1	Reserved posts for women from scheduled caste	953
2	Reserved posts for women from scheduled tribes	560
3	Reserved posts for women from other backward class	2251
4	Reserved posts for women from open category	4575
5	Reserved posts for women from women sarpanch	8339

Ref. Daily Lokmat Newspaper, Date 29-3-2009

Table No.3 clearly explains that women from all categories have achieved the post of Sarpanch grampanchyat in Maharashtra. Almost women have grabbed the post of Sarpanch at 8339 places. 953 women became members of the grampanchayat from scheduled castes, whereas 560 women member from scheduled tribes, 2251 women were members from OBC. At last 4575 women were members from open category. It shows that it is development of not only the strong women but also women from minority classes.

Due the reservation of women in Grampanchayat, women are becoming strong in politics as well as society. Women are trying to show their importance in all sections. They are able to cross men in politics due to their empowerment. There is continuous development in rural area in terms of wealth, and official requirements. Women could any kind of appeal which was created by the men. It could happen due to their confidence and potential.

POLITICAL EMPOWERMENT

Reservation become the golden mean of the politics and women. As a result that would become a topic of great tand. Earlier women didn't have chance to involve in politics. Political was out of the range topic but today it

has great importance. That could happen because of reservation of women. Now these topics are discussed as high issues. Eventhough, the benefit of the reservation should reach as the grass-root level (i.e. to the village women).

In city area some women are strong, stout, empowered, they can easily take dicision on their own & they can involve in politics without any hesitation. But it rarely happens in rural area. The cruse of the matter is reservation should reach at the grass-root level. So that women from all areas would involves in politics and develop their locality. Ultimately, if would help us to develop our country.

CONCLUSIONS

1) Overall 46 women have participated in the parlimantory house of the country.
2) 18 women have involved in the Rajyasabha House of the country.
3) 12 women have participate in Assembly House of Maharashtra.
4) 5 women have joined in legislative council of Maharashtra.
5) Two women become the ministers in the state government.
6) There are 17 women members as district president in Maharashtra.
7) There are 7 women members as district president from scheduled castes in Maharashtra.
8) In Maharashtra, two women are district president from scheduled tribes.
9) In Maharashtra, especially in Panchayat committee almost 116 women are president.
10) 19 women from scheduled castes have become president in Panchayat committee in Maharashtra.
11) 13 women front scheduled tribes have become president in Panchayat committee in Maharashtra
12) In Panchayat committee almost 874 women from open category have become president in Maharashtra.
13) In Maharashtra almost 8339 posts are reserved for women Sarpanch post. Due to that reason, all pots of sarpanch for women have been grabbed by the women from rural area.
14) 953 and 536 women have grabbed the post of Sarpanch from scheduled castes and scheduled tribes respectively.
15) Women from OBC and open categories also achieved the post of Sarpanch. 2257 and 4575 women from OBC and General category have grabbed the Sarpanch's post.

REFERENCE

1) Arthsanwad: Editor – Jagannath Patil & Avinash Nikam
Oct.-Dec. 2008, issue 32, Volume 3,
April-June 2010, issue 34, Volume 1
July-September, 2010, issue 34,Volume 2
April-June 2011, issue 35, Volume 1

2) Yojana, Editor Netin Kelkar, Year 36, Vol.3

3) Daily Newspapers, Lokmat, Pudhari, Sakal,
Dates Sequence 29-3-2009 , 8-4-2009, 14-3-2010 P.No.4, 4, 5

4) Laws of women, Indian Constitution, Women related

5) Ghadata, Ghadvita Rohini Gavankar
Usha Thakkar (2009), Publisher P.V. Khamrao, Lokwandmay Gruh, Mumbai.

SEMI-ATOMS IN À”-SEMILATTICES

* A. D. Lokhande

ABSTRACT

Extending some results of Varlet [3], Jayaram [1] has characterized semi-atoms in a 0-distributive À”-semilattice (see [1], proposition 2). As the condition of 0-distributivity is merely used to get {a}* as an ideal, Proposition 2 and Proposition 3 in [1] are generalized .

Keywords : À”-semilattice , Semi-atom ,Semi-ideal , Non-dense, Semi-atomistic

§ 1. INTRODUCTION :

In [2] , Varlet has defined 0-distributive À”-semilattice. While giving necessary and sufficient conditions for an updirected À”-semilattice with 0 to be 0-distributive, Jayaram [1] has introduced the notion of a semi-atom in a À”-semilattice with 0, noting that this definition of a semi-atom coincides with the definition of a pseudo-point given by Varlet [3].

In [1], Jayaram has characterized semi-atoms in 0-distributive À”-semilattice. The main purpose of assuming 0-distributivity is to get {a}* as an ideal for any element a in it. But it is observed that in any À”-semilattice S with 0 , {a}* is a semi-ideal for each element a ∈ S [4], and this property of {a}* being a semi-ideal in S is sufficient to get characterizations for an element a in S to be a semi-atom. Taking hint from this we have characterized semi-atoms in any À”-semilattice. The result of Jayaram ([1], proposition 2) follows as a corollary. Similarly we have characterized semi-atomistic À”-semilattices which are also not necessarily be 0-distributive. This generalizes the result of Jayaram ([1], proposition 3) .

The characterizations of semi-atoms in À”-semilattices and semi-atomistic À”-semilattices are put together in Section 3.

§ 2. PRELIMINARIES :

Let $< P \leq >$ be a poset.

An element $0 \in P$ is called the zero element (if it exists) if $0 \leq x$ for each $x \in P$. An element $1 \in P$ is called unit element (if it exists) if $x \leq 1$ for each $x \in P$. A poset P having both the elements 0 and 1 is called a bounded poset.

A poset P with 0 is a disjunction poset if for any pair a, b ($a \neq b$) of P, there is an element $c \in P$ such that

$(a] \cap (c] = (0]$ and $(b] \cap (c] \neq (0]$ (see [4])

Dr. A. D. Lokhande.
Head, Department of Mathematics.
Y.C.Warana Mahavidhyalaya, Warananagar.
E-mail: aroonlokhande@gmail.com.

An element $a \neq 0$ in P is an atom if $0 < a$ and there exists no b in P such that $0 < b < a$. An element $a \neq 1$ in P is a dual atom if $a < 1$ and there exists no b in P such that $a < b < 1$.

Let $A \neq \phi$ be a subset of a poset P. When A is finite say

$A = \{ a_1, a_2, \ldots, a_n \}$, the least upper bound (l.u.b) and the greatest lower bound (g.l.b) of A if they exist are denoted by $a_1 \vee a_2 \vee \ldots \vee a_n$ and $a_1 \wedge a_2 \wedge \ldots \wedge a_n$ respectively.

A non-null subset A of a poset P is called a semi-ideal if $a \in A$, $b \leq a$ $(b \in P) \Rightarrow b \in A$ (see [5]).

A proper semi-ideal A of a poset P is said to be prime if

$(a] \cap (b] \subseteq A \Rightarrow (a] \subseteq A$ or $(b] \subseteq A$, for $a, b \in P$ (see [4]) .

A prime semi-deal of a poset P is called a minimal prime semi-ideal if it does not contain any other prime semi-ideal.

A semi-ideal A of P is called an ideal if $a_1, a_2, \ldots, a_n \in I$,

$a \vee a_2 \vee \ldots \vee a_n$ exists in P then $a_1 \vee a_2 \vee \ldots \vee a_n \in I$. (see [4]).

A principal ideal generated by an element $x \in P$ is the set

$\{ y \in P / y \leq x \}$ and it is denoted by the symbol $(x]$.

For any subset $A \neq \phi$ of a poset P with 0, we define

$A^* = \{ y \in P / (x] \cap (y] = (0]$ for each $x \in A \}$.

If $A = \{a\}$, we write $A^* = \{a\}^*$.

A subset $A \neq$ of a poset P is said to be dense (non-dense) if

$A^* = \{0\}$ ($A^* \neq \{0\}$) . The maximal annihilator in P is a maximal element in the set of all annihilators in P .

For a poset P with 0 , we denote $A(P) = \{ \{x\}^* / x \in P \}$. Note that $A(P)$ is a poset under the '$\subseteq$' set inclusion. Further $\{0\}^*$ will be the largest element of $A(P)$.

By a $\wedge$-semilattice S we mean a partially ordered set $< S, \leq >$ in which any two elements a and b have the greatest lower bound denoted by $a \wedge b$. Note that $a \leq b \Leftrightarrow a \wedge b = a$ for $a, b \in S$.

A non-zero element 'a' of a semilattice S with 0 is said to be semi-atom if for any pair $x, y \in S$, $x \wedge y = 0$ implies either $a \wedge x = 0$ or $a \wedge y = 0$ (see [1]).

A semilattice S with 0 is called atomistic if for each $0 \neq a \in S$, there exists an atom $q \in S$ such that $0 < q \leq a$ (see [1]).

For any subset I of S with 0 we define

$I^* = \{ x \in S / x \wedge y = 0$, for all $y \in I \}$.

§ 3. SEMI-ATOMS IN $\wedge$-SEMILATTICES.

Throughout this section S denotes a $\wedge$-semilattice with 0.

While extending some results of Varlet [3], Jayaram [1] has characterized semi-atoms in a 0-distributive $\wedge$-semilattice (see [1], proposition 2). As the condition of 0-distributivity is merely used to get $\{a\}^*$ as an ideal, Proposition 2 and Proposition 3 in [1] are generalized in the following way.

THEOREM (3.1) : For any non-zero element a in S , the following statements are equivalent.

1) a is a semi-atom in S .

2) {a}* = {s}* for any $0 \neq s \leq a$ ($s \in S$).

3) {a}* is a prime semi-ideal of S .

4) {a}* is the only minimal prime semi-ideal of S not containing a.

5) {a}* is a dual atom in A(S), where A(S) = { {x}* / $x \in S$ } .

6) {a}* is a maximal annihilator of S .

PROOF : (1) $\Rightarrow$ (2) .

Let $s \in S$ such that $0 \neq s \leq a$.

As $s \leq a$, $\{a\}^* \subseteq \{s\}^*$. Now let $t \in \{s\}^*$.

t À" s = 0 and a is a semi-atom in S will imply a À" t = 0 or a À" s = 0. But $s \leq a$ and $s \neq 0$ will give a À" s ≠ 0 . Hence a À" t = 0. Thus $t \in \{a\}^*$, proving that $\{s\}^* \subseteq \{a\}^*$. Combining both the inclusions we get $\{a\}^* = \{s\}^*$.

2) $\Rightarrow$ (3) .

Obvioiusly, {a}* is a semi-ideal of S . To prove {a}* is a prime semi-ideal, let x À" y ∈ {a}* with $x \notin \{a\}^*$. Then x À" a ≠ 0. As $0 \neq x$ À" a , by (2) we get { x À" a }* = {a}* . Now x À" y ∈ {a}* implies x À" y À" a = 0 and hence y ∈ {x À" a}* = {a}*. Thus x À" y ∈ {a}*, $x \notin \{a\}^*$ imply $y \in \{a\}^*$, showing that {a}* is a prime semi-ideal of S .

3) $\Rightarrow$ (4) .

As $a \neq 0$, $a \notin \{a\}^*$. Thus by (3), {a}* is a prime semi-ideal not containing a . To prove {a}* is a minimal prime semi-ideal of S , suppose there exists a prime semi-ideal P in S such that $P \subseteq \{a\}^*$. As $a \notin \{a\}^*$ we get $a \notin P$. For any $x \in \{a\}^*$ as x À" a = 0 we get x À" a ∈ P . By primeness of P , $x \in P$ as $a \notin P$. But this shows that $\{a\}^* \subseteq P$. Therefore $P = \{a\}^*$. Hence {a}* is a minimal prime semi-ideal in S not containing a .

Now suppose that there exists a other minimal prime semi-ideal Q in S not containing a. Then Q being prime we get $x \in \{a\}^*$ will imply $x \in Q$. Hence $\{a\}^* \subseteq Q$. By minimality of Q we get $Q = \{a\}^*$.

Thus {a}* is the only minimal prime semi-ideal in S not containing a .

4) $\Rightarrow$ (5) .

We know, A (S) = { {x}* / $x \in S$ } . As $a \neq 0$, $\{a\}^* \neq \{0\}^* = S$. Assume that there exists some $x \in S$ such that $\{a\}^* \subset \{x\}^* \subseteq \{0\}^*$. Let $c \in \{x\}^*$ such that $c \notin \{a\}^*$. c À" x = 0 implies c À" x ∈ {a}*. As {a}* is a prime semi-ideal, $x \in \{a\}^*$ as $c \notin \{a\}^*$. Thus $x \in \{x\}^*$ since $\{a\}^* \subset \{x\}^*$, which implies x = 0. This in turn shows that {a}* is a dual atom in A(S) .

5) $\Rightarrow$ (6).

Let B* be a annihilator in S such that $\{a\}^* \subseteq B^*$ and $B^* \neq S$. As $B^* \neq S$, $B^* \neq \{0\}^*$. Hence there exists $b \in B$ such that $b \neq 0$. If $B \subseteq \{a\}^*$ then $b \in \{a\}^*$ would imply $b \in B^*$ (since $\{a\}^* \subseteq B^*$) and hence b = 0; a contradiction. Therefore B ^" (a)* . Select any $x \in B$ such that $x \neq 0$ and

$x \notin (a)^*$. Let $y \in B^*$ then $y \grave{A}" x = 0$ will imply $x \in \{y \grave{A}" a\}^*$. As $y \hat{a} a \leq a$ we get $\{a\}^* \subseteq \{y \grave{A}" a\}^*$. As $x \notin \{a\}^*$ and $x \in \{y \grave{A}" a\}^*$ we get $\{a\}^* \subset \{y \grave{A}" a\}^*$. By assumption (5), $\{a\}^*$ being a dual atom in A(S) we get $\{y \grave{A}" a\}^* = \{0\}^*$ i.e. $y \grave{A}" a = 0$. Thus $y \in B^*$ implies $y \in \{a\}^*$ showing that $B^* \subseteq \{a\}^*$. From $\{a\}^* \subseteq B^*$ and $\{B\}^* \subseteq \{a\}^*$ we get $B^* = \{a\}^*$ and the implication follows.

(6) $\Rightarrow$ (1) .

Assume that $\{a\}^*$ is a maximal annihilator in S . Let for $x, y \in S$, $x \grave{A}" y = 0$ and $x \grave{A}" a \neq 0$. Then $x \grave{A}" a \leq a$ implies $\{a\}^* \subseteq \{x \grave{A}" a\}^*$. By assumption, $\{x \grave{A}" a\}^* = S$ or $\{x \grave{A}" a\}^* = \{a\}^*$. As $x \grave{A}" a \neq 0$ we get $\{x \grave{A}" a\}^* \neq S$. Hence $\{x \grave{A}" a\}^* = \{a\}^*$.

Now, $x \grave{A}" y = 0 \Rightarrow x \grave{A}" y \grave{A}" a = 0 \Rightarrow y \in \{x \grave{A}" a\}^* \Rightarrow y \in \{a\}^* \Rightarrow y \grave{A}" a = 0$.

Thus $x \grave{A}" y = 0$, $x \grave{A}" a \neq 0 \Rightarrow y \grave{A}" a = 0$.

This shows that a is a semi-atom in S . Thus we have proved that

(1) $\Rightarrow$ (2) $\Rightarrow$ (3) $\Rightarrow$ (4) $\Rightarrow$ (5) $\Rightarrow$ (6) $\Rightarrow$ (1) and hence all the given statements are equivalent.

If S is a 0-distributive $\grave{A}"$-semilattice then $\{a\}^*$ is an ideal in S for any $a \in S$. Hence from Theorem 3.1 it follows immediately that

COROLLARY (3.2) : [C. Jayaram [1], proposition 2] :

Let S be a 0-distributive $\grave{A}"$-semilattice and a be any non-zero element of S. The following statements are equivalent.

1) a is a semi-atom in S.

2) $\{a\}^* = \{s\}^*$ for every $0 \neq s \leq a$ $(s \in S)$.

3) $\{a\}^*$ is a prime ideal of S .

4) $\{a\}^*$ is the only minimal prime ideal of S not containing a .

5) $\{a\}^*$ is a dual atom in A (S).

6) $\{a\}^*$ is amaximal annihilator of S .

REMARK (3.3) : If in any semilattice S, $a \in S$ such that $\{a\}^*$ is an ideal then also the conditions stated in Corollary 3.2 are equivalent.

Recall that S is semi-atomistic if for each non-zero element $a \in S$ there exists a semi-atom $b \in S$ such that $0 < b \leq a$. (see [1]) .

Now we prove a result that is needed to characterize semi-atomistic semilattices.

LEMMA (3.4) : If P is a non-dense prime semi-ideal of S, then $P = \{x\}^*$ for some semi-atom $x \in S$.

PROOF : As P is non-dense, $P^* \neq \{0\}$.

Hence there exists a non-zero element x in P^*.

Claim : $\{x\}^* = P$.

Let $y \in \{x\}^*$. Then $y \wedge x = 0$ implies $y \wedge x \in P$. As P is prime, $x \in P$ or $y \in P$. As $x \in P^*$ and $x \neq 0$ we get $x \notin P$. Hence $y \in P$. Thus $\{x\}^* \subseteq P$.

Now suppose $y \in P$. Then $x \wedge y = 0$ as $x \in P^*$, and hence $y \in \{x\}^*$ implies that $P \subseteq \{x\}^*$.

Combining both the inclusions we get $P = \{x\}^*$. Thus $\{x\}^*$ is a prime semi-ideal in S . Hence by Theorem 3.1, x is a semi-atom. This completes the proof of the theorem.

REMARK (3.5) : From the proof of Lemma 3.4 we get if P is a non-dense prime ideal of S then also $P = \{x\}^*$ for some semi-atom $x \in S$. Hence there is no need to assume 0-distributivity of S in the Lemma 1 of [1].

Necessary and sufficient conditions for a semilattice S to be atomistic are given in the following theorem.

THEOREM (3.6) : The following conditions are equivalent in S .

1) S is semi-atomistic.

2) If $\{a\}^* \neq \{0\}^*$ then $\{a\}^* = \cap \{ \{x\}^* / x \leq a,$ x is a semi-atom in S $\}$.

3) $(0] = \cap \{ P / P$ is a non-dense prime semi-ideal in S $\}$.

4) $I^* = (0]$, where $I = \cup \{ \{x\}^{**} / x$ is a semi-atom in S $\}$ is a non-empty subset of S .

PROOF : (1) $\Rightarrow$ (2) .

Obviously, $\{a\}^* \subseteq \cap \{ \{x\}^* / x \leq a,$ x is a semi-atom in S $\}$.

Let if possible $\{a\}^* \subset \cap \{ \{x\}^* / x \leq a,$ x is a semi-atom in S $\}$.

Then there exists some $y \in \cap \{ \{x\}^* / x \leq a,$ x is a semi-atom in S $\}$ such that $y \notin \{a\}^*$. As $y \wedge a \neq 0$ and S is atomistic, there exists an atom c such that $0 < c \leq y$. As $c \leq a$ and c is a semi-atom we get

$\cap \{ \{x\}^* / x \leq a,$ x is a semi-atom $\} \subseteq \{c\}^*$. Hence $y \in \{c\}^*$. But then $y \wedge c = 0$ implies that $c = 0$ as $c \leq y$; a contradiction. Hence our assumption is wrong. Thus

$\{a\}^* = \cap \{ \{x\}^* / x \leq a,$ x is a semi-atom in S $\}$.

(2) $\Rightarrow$ (3) .

Obviously, $(0] \subseteq \cap \{ P / P$ is a non-dense prime semi-ideal in S $\}$.

Let if possible, $(0] \subset \cap \{ P / P$ is a non-dense prime semi-ideal in S $\}$. Then there exists $x \in \cap \{ P / P$ is a non-dense prime semi-ideal in S $\}$ such that $x \neq 0$. Hence $\{x\}^* \neq \{0\}^*$ by (2) .

$\{x\}^* = \cap \{ \{y\}^* / y \leq x,$ y is a semi-atom in S $\}$ .As $x \notin \{x\}^*$ we get

$x \notin \cap \{ \{y\}^* / y \leq x,$ y is a semi-atom in S $\}$.

Hence there exists a semi-atom say b in S such that $x \notin \{b\}^*$ and $b \leq x$

As b is a semi-atom in S , by Theorem 3.1, {b}* is a non-dense prime semi-ideal of S . Hence by the choice of x , we get x ∈ {b}*; a contrdiction. Hence our assumption is wrong. This proves that (0] = ∩ { P / P is a non-dense prime semi-ideal in S } .

(3) ⇒ (4) .

Let I = ∪ { {x}** / x is a semi-atom of S } .

As 0 ∈ {x}** always for x ∈ S, we get I ≠ ϕ . Now 0 ∈ I* implies that (0] ⊆ I* . Assume if possible, (0] ⊂ I*. Then there exists x ∈ I* such that x ≠ 0 . By (3), (0] = ∩ { P / P is a non-dense prime semi-ideal in S }.

As x ∉ 0 we get

x ∉ ∩ { P / P is a non-dense prime semi-ideal in S } .

Hence there exist a non-dense prime semi-ideal say P_1 such that x ∉ P_1 . By Lemma 3.4 P_1 = {a}* for some semi-atom a in S . As x ∉ P_1 , we get x ∉ {a}* and hence x À" a ≠ 0 . As a is a semi-atom in S, {a}** ⊆ I . As a ∈ {a}** we get a ∈ I . As a ∈ I and x ∈ I* we get x À" a = 0 ; a contradiction. Hence our assumption is wrong. Therefore I* = (0] , where I = ∪ { {x}** / x is a semi-atom in S } , I ≠ ϕ.

(4) ⇒ (1) .

Let a ≠ 0 be any element of S . By (4), I* = (0] for I = ∪ { {x}** / x is a semi-atom in S } and I ≠ ϕ . Hence a ∉ I. Therefore a À" b ≠ 0 for some b ∈ I . Thus we get 0 < a À" b ≤ a. It remains to prove that a À" b is a semi-atom in S . As b ∈ I, by the definition of I, there exists some semi-atom c in S such that b ∈ {c}**. Now obviously {a À" b}* ⊆ {a À" b À" c}*. Let z ∈ {a À" b À" c}* . Then z À" (a À" b À" c) = 0 implies z À" a À" b ∈ {c}* . As b ∈ {c}** and (z À" a À" b) ∈ {c}* we get z À" a À" b=0 i.e. z ∈ {a À" b}*.

Thus {a À" b À" c}* ⊆ {a À" b}*. Combining both the inclusions we get {a À" b}* = {a À" b À" c}* . Let x À" y = 0 for some x, y ∈ S . As c is semi-atom, c À" x = 0 or c À" y = 0 .

Suppose x À" c = 0. Then

x À" c = 0 ⇒ (x À" c) À" (a À" b) = 0 x À" (a À" b À" c) = 0

⇒ x ∈ {a À" b À" c}* ⇒ x ∈ {a À" b}* ⇒ x À" (a À" b) = 0,

(as {a À" b À" c}* = {a À" b}*)

Similarly, y À" c = 0 ⇒ y ∈ (a À" b)* ⇒ y À" (a À" b) = 0 .

Thus given x À" y = 0 (x, y ∈ S) we get x À" (a À" b) = 0 or y À" (a À" b) = 0 . This in turn shows that a À" b is a semi-atom in S . Thus given a ≠ 0 in S there exists a semi-atom a À" b in S such that 0 a À" b ≤ a . Hence S is semi-atomistic. Thus (1) ⇒ (2) ⇒ (3) ⇒ (4) ⇒ (1) and hence all the statements are equivalent.

REMARK (3.7) : By Theorem 3.1, non-zero element x in S is a semi-atom if and only if {x}* is a dual atom in A(S), where

A (S) = { {y}* / y ∈ S } . Hence the condition (2) in Theorem 3.6 is equivalent to {a}* = ∩ {{x}* /{x}* is a dual atom in A (S) containing {a}*}

But then this in turn is equivalent to say A(S) is dual atomic (i.e. each {a}* ≠ {0}* is the intersection of all dual atoms in A (S)) .

By Theorem 3.6 and Remark 3.7 we get

COROLLARY (3.8) : ([1], Proposition 3) : In a 0-distributive semilattice S, following are equivalent.

1) S is atomistic

2) A (S) is dual atomic.

3) $\cap$ { P / P is a non-dense prime ideal in S } = (0]

4) I* = (0], where I = $\cup$ { {x}** / x is a semi-atom in S } is non-empty.

REFERENCES

1. C. Jayaram.; Semi-atoms in semilattices.
   Mathematics Seminar Notes. Vol. 10 (1982)., 351-366.
2. Varlet, J.C.; Distributive semilattices and Boolean lattices.
   Bull. Soc. Roy. Liege 41 (1972)., 5-10.
3. Varlet, J.C.; Contribution a le tude destneillis pseudo complement set des treillis de stone, Memories, Soc. Roy. Sci. Liege 8, fsc 4, (1963)., 1-71.
4. Venkatanarasimhan, P. V.; Semi-ideals in semilattices.
   Colloq. Math 30 (1974), 203-212.

REFORESTATION IN MINING AREAS LOCATED IN NORTHERN WESTERN GHATS

* Madhukar Bachulkar - Cholekar

ABSTRACT

Forests are an important renewable natural resource. Forest helps to maintain ecological balance of an area. Forests are store house of biodiversity. In India, about 22% of land is under forest cover, out of that only 10% land is covered by thick forests. India is losing about 1.5 million hectares of forest cover each year. Nearly 1% of the land surface of India is turning barren every year due to deforestation. Western Ghats is a second region of India, which is very rich in biodiversity. It is a Biodiversity Global Hot Spot. This region is also rich in various mineral ores. Mining activities are one of the major threat to the biodiversity of Western Ghats. The plateaus of Northern Western Ghats are very rich in biodiversity and mineral ores too. They are rich in bauxite and iron ores. Mining activities carried, on these plateaus, which lead to cause air, water and sound pollution which damages biodiversity of the plateaus and nearby regions.

Ecosystem of plateaus get damaged and disturbed by mining. Vegetation cover completely demolished and rocks get exposed. Many big creatures developed on plateaus after mining. Rehabilitation of mining land is requiring to develop vegetation. Detail process of rehabilitation, restoration and reforestation along with the list of tree species suitable for reforestation in mining areas are discussed in the present paper.

Key words : Northern Western Ghats, Plateaus, Mining activities and damages, Rehabilitation, Restoration, Reforestation.

INTRODUCTION

Forests are essential for ecological balance of an area. Forests are an important components of our environment and economy. Forests check air pollution and soil erosion. They save the hill slopes from landslides, check the wind velocity and attract rainfall too. Forests are an important renewable natural resource. Forests contribute substantially to the economic development of country by providing goods and services to the people and industry. The chief product of Forest is wood. Forests also supply various minor forest products.

Forests are store house of biodiversity, providing protection to wildlife. Forests have aesthetic and touristic values and serve as gene reserve of various species. Forests help in balancing the gaseous (O_2, CO_2) cycles of atmosphere, increase water holding capacity of soil, maintain the soil fertility, regulate the earth's temperature and water cycle and reduce the flood damages.

FOREST COVER IN INDIA

There are no reliable statistics of forest cover in India. According to Central Forestry Commission (CFC), the forest cover in 1980 was around 74.8 Mha. (22.7%) of the total land. Among 16 different forest types of the country, the most common is the Tropical Dry Deciduous (33.07%) followed by Tropical Moist Deciduous (30.09%)

In India, forest wealth is deteriorating at a rapid rate. In 1980, about 22% of land was under forest cover, but today this has been reduced to just over 10% only. India has been losing about 10 million trees every 24 hours. Indian forests comprise only 0.50% of the World forest area. India is losing about 1.5 million hectares of forest cover each year. During a period of 25 years (1951-1976) India has lost 4.1 million hectares of forest area.

Dr. Madhukar Bachulkar - Cholekar
Principal, Shri Vijaysinha Yadav College, Peth Vadgaon,
Kolhapur, (M. S.)
e-mail : bachulkar55@gmail.com

IMPACTS OF DEFORESTATION

The per capita forest land in India is 0.10 ha; compared to the World average of 1.0 ha, Canada 14.2 ha, Australia 7.60 ha and USA 7.30 ha. Effects of deforestation in India include soil, water and wind erosions, estimated to the cost over 16,400 Crores every year. Deforestation causing tremendous soil erosion and landslides. On an average India is losing about 6000 million ton of fertile top soil every year due to absence of trees (forests). The loss worked out from the top soil erosion in 1973 was Rs 700 crore and Rs 1200 crore in year 1978.

In India large scale deforestation has been done for fuel. India consumes nearly 170 million ton of fire wood annually, and 10-15 million hectares of forest cover is being stripped every year to meet fuel requirements. During a period of 20 years (1972 to 1992) 28.32 lakh ha, forest have been cut for Agriculture and fuel, 8.10 lakh ha for River Valley and Dam projects. 7.82 lakh ha for the Mining and industrial uses, 2.44 lakh ha for Road construction and 3.92 lakh ha for Miscellaneous uses. (Rao, 1994)

Nearly 1% of the land surface of India is turning barren every year due to deforestation. In the Himalayan range the rainfall has declined 3 to 4 % due to deforestation. Mining and industries has serious impact on forest areas. In different states large forest areas have been clear felled and laid barren as a result of open cast mining.

WESTERN GHATS

Western Ghats is a second region of India which is very rich in Biodiversity. It is a **Global Hotspot** too. Western Ghats is spread between Konkan and Deccan Plateau and it lie parallel to the West Coast of Indian Peninsula, which is about 1600 Km long. It extends along Gujrat, Maharashtra, Goa, Karnataka, Tamilnadu and Kerala. It originate from Tapi river of Gujrat near Navapur and ends at Kanyakumari.

The area of Western Ghats is about 1,30,000 Sq.Km. which is 5% of total land of India. The region has about 12000 species of living organisms. About 4500 higher plant species reported from Western Ghats, out of which about 1500 species are endemic.

About 40% region of Western Ghats is covered by forests. About 15% of area in Western Ghats is protected for the conservation of Biodiversity. More than 1200 important medicinal plants are present in this region. The region has 490 tree species, of which 309 are endemic. The region has 245 species of Orchids, of which 112 species are endemic. About 315 species of Vertebrates are endemic to Western Ghats. These includes 12 species of mammals, 23 species of birds, 89 species of reptiles, 87 species of amphibians and 104 species of fishes. About 117 species of amphibians and 165 species of reptiles have been reported from Western Ghats (Bachulkar *et al*., 2006).

The rainfall of the region ranges between 2000 to 6000 mm annually. About 120 rivers originate in Western Ghats region and about 2043, dams have been constructed on these rivers. Many hydroelectric projects are functional on these dams and generate more than 10235 MW electricity. Our industries and agriculture are totally depends on Western Ghat, hence the region is considered as Backbone of Environment and Economics of Southern India. This region is also rich in various mineral ores like Iron ore, Bauxite, Manganese, Chromites etc. (Jadhav *et al*., 2009).

Biodiversity of Western Ghats is being eroded by many causes. Main threats are overpopulation, over exploitation, over consumption, deforestation, loss of natural habitats, urbanisation, industrialisation, developing projects, changes in farming pattern, shifting cultivation, environmental pollution, climatic changes, tourism, introduction of exotic weeds, monoculture, poaching and illegal trades, forest fire etc. Among these, one of the major threats to the Biodiversity of Western Ghats is mining activities.

NORTHERN WESTERN GHATS

The region of Western Ghats situated between Tapi to Goa is Northern Western Ghats, also known as Sahyadri. Northern Western Ghats includes 12 districts of Maharashtra and Goa and two districts of Karnataka namely Belgaum and North Kanara. Apart from Biodiversity, Northern Western Ghats is also rich in various Mineral Ores. Kolhapur and Sindhudurga districts of Maharashtra and Belgaum district of Karnataka are rich with Bauxite and Goa State is mainly rich with iron ores and Manganese.

The mountainous tops and hill tops of Northern Western Ghats are generally flat, known as "Plateaus" or ''Table lands''. Plateaus are often ill-concerned as barren lands, but biologically plateaus are very important. Plateaus have grassy herbaceous flora with shrubby vegetation and less tree cover. Plateaus changes their colours after every 15-20 days. The panorama of plateaus during monsoon strikes the eyes. Many rare, endemic, endangered plant species reported from such plateaus. Plateaus are the region of origin of new species, so they considered as "Active Zones of Speciation" (Bachulkar *et al*., 2006).

Plateaus are used as "corridor" by wild animals during their migration. Herbivorous animals feeds on grasses and plants grown on plateaus during monsoon. Plateaus are the hunting sites of carnivorous animals. Wild animals used the plateaus for shelter during rainy days.

Apart from biodiversity, plateaus are also rich in mineral ores. They are naturally rich with bauxite and iron ores. Since 50-60 years biodiversity of the plateaus are under influence of different biotic activities, among that, one of the most important is mining operation. Mining activities are carried on, these plateaus. Mining is excavation of land, which destroy the natural habitat of many plant species grows on plateaus. Due to the mining activities many known and unknown plant and animal species might have been extinct.

Mining has leaded to cause air, water and sound pollution, which are harmful to wild animals, vegetation and human. All working and proposed mining sites situated in Northern Western Ghats are located in or near sanctuaries, National Parks, reserve forest areas or in forest lands. Many of them are located near the river, streams or back water areas of dams. Mining activities causes serious damages to the Biodiversity and Environment of Sahyadri (Jagtap and Bachulkar, 2006).

ENVIRONMENTAL CONSEQUENCES OF MINING

In Sahyadri region 80% mining is in forest occupy area. In Kolhapur district of Maharashtra State, Bauxite mining is going on. In Sindudurga district bauxite and iron ore mining are functional. In Goa state iron ore mining is carried. As well as in Belgaum district of Karnataka State, bauxite mining is there. Ecosystem get damaged and disturbed by mining. Top layer of land is destroyed, vegetation cover completely demolished and rocks get exposed. Mining area polluted due to heavy metals which present in mining wastage.

In Goa state one billion ton mining wastage is thrown in creatures of mining areas. There are many big creatures, where mining work is stopped. Every year 30 to 40 million tons mining wastage is thrown in such a big creatures. Underground water level get reduced by mining. Springs dries and supply of water to rivers decreases. Scarcity of water shows impacts on nearby forests, which helps to reduce local biodiversity.

In rainy season mining wastage and silt deposited in river bottom, as a result water polluted and aquatic life of river affected. Mineral ores and wastage of mining stored at the mouth of river (In Mandavi and Zuvari rivers of Goa State annually two lakhs eighty thousand tons of mineral ore and mining wastage are stored). As a result shape of river mouth bottom changed, depth of river reduced. These changes affected aquatic biodiversity of river and shows adverse effect on fish productivity.

Beneficial soil microorganisms damaged by poisonous things coming out of mines. As a result, nutritious material supply to the plants reduced, which affects natural food chain and finally shows impact on plant and animal diversity.

Due to high rate of soil erosion in mining area, silt and mining wastage deposited in dams and water cannals. Poisonous things of mines spread in farms and fields through water, as a result, production capacity of soil decreases and finally productivity of crops reduced.

Explosions in mining areas make to fear wild animals and birds as a result they migrate from the area. Various operating activities in mining areas and mineral ore transport creates air pollution due to that human being affected by breathing diseases. Even it affects photosynthetic activities of plants and also shows adverse effects on health of vegetation and wild animals.

REHABILITATION OF MINING BARREN AREAS

In barren areas of mining natural process begin slowly. The layers of soil is slowly deposited. Small bushes slowly starts to appear. Nature take more time for this process. In order to carry this procedure fastly, we need to do rehabilitation of this mining land. With the help of suitable machinery, reduce the slop of mining area and make land plain and flat. It will help to reduce soil erosion, and land will develop its capacity to deposit water.

Upper layer of soil contain more organic matter. This layer naturally contain essential matter, minerals, seeds and soil micro organisms. Upper top layer of soil if removed and stored separately (over burden) during mining, reuse it and spread over on used mining area. It will helpful for the growth of plants.

Heavy vehicles and machinery are used at the time of mining, as a result, soil is pressed, due to this it lost the capacity to store water in it. Therefore such land is not useful for the plant growth. In such land with the help of tractor, we need to make deep trenches, which will reduce soil erosion and will improve aeration and the water holding capacity of land. In such a soil, now plants can enter their roots very easily.

In mining lands, percentage of organic matter is very less or absent. In such a land, green manures, cow dung manure, compost manure, vermiculture manure, leaf litter, biofertilizers should be deposited. So the quality of land will improve, and it will help for the healthy growth of plants and trees. (Table - 1)

Rehabilitation's main objective in mining area is to make an area green with plants, bushes and trees. It will be helpful, in order to reduce, the loss of nature in mining areas (Viresh *et al*., 1993).

REFORESTATION IN MINING AREAS

Next step after rehabilitation of mining area is R**estoration**. Restoration means, earlier situation of land we need to give once again to mining land. Next stage after restoration is **Reforestation**. The original forest is destroyed because of mining. Reforestation is an artificial forest development of such area once again (Table - 2).

When we are making reforestation, then we need to study that area carefully and to plan properly for reforestation. In this study, we need to concentrate on physical, chemical, biological and hydrological characters of land and have to prepare map for tree plantation.

It is very important task, to select suitable tree species for reforestation in mining area. This selection of plants, depend on different elements.

i) We need to collect the following information in order to find, which kind of tree categories are suitable in selected reforestation area.

a) Climate : Temperature in winter and summer season. Annual ratio of rain, number of rainy days, speed of wind velocity and direction of wind.

b) Soil : Types of soil, percentage of minerals and organic matter, quality of soil and soil pH.

ii) Selected tree species must have ability to grow in dumped wastage of mining.

iii) Selected tree species must be local and some extent exotic. Selected tree species must be fast growing and economically important.

iv) Selected tree species must be resistant to diseases and insect pests and able to cope with local environment.

v) Even selected tree species must be of choice of local inhabitants. These trees must attract insects, birds and animals, so it will enhance local biodiversity (Table - 3).

REFERENCES :

1. Bachulkar Madhukar, B.V. Kulkarni and S.A. Shah (2006). *Concise Environmental Studies* : Biodiversity and its conservation pp. 67-90. (R.K. Publications, Kolhapur).
2. Jadhav B.S., M.Y. Bachulkar-Cholekar and B.N. Gophane (2009). Impact of Bauxite mining on Western Maharashtra : An Environment Assessment of Kolhapur District. *Enrich Environment*, **5(2)** : 47-54.
3. Jagtap Dashrath and Madhukar Bachulkar (2006). Bauxite mining, A major threat to the Biodiversity of Sahyadri. Proceeding of International Conference on *Sustainable Development*, Pune pp. 435-437.
4. Rao R.R. (1994). *Biodiversity of India* (Bishen Singh Mahendrapal Singh, Dehra Dun).
5. Viresh A.V., Marina Suza, Balinda Lobo and S.G. Torane (1993). *Biodiversity of Western Ghats* : Impacts of Mining; Rehabilitation and Restoration of mining barren area in Goa State. pp. 206-215. (World Wide Fund for Nature - India, New Delhi).

Table - 1 : Reforestation In Mining Areas

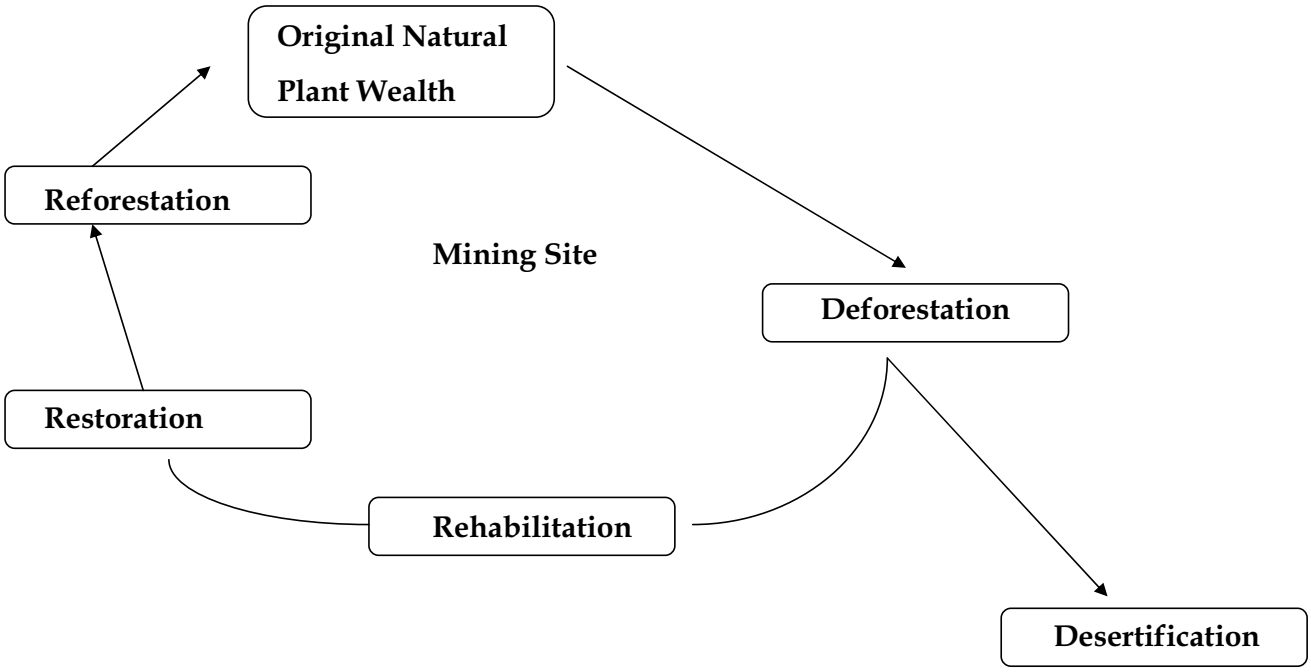


Table - 2 : Reforestation In Mining Areas

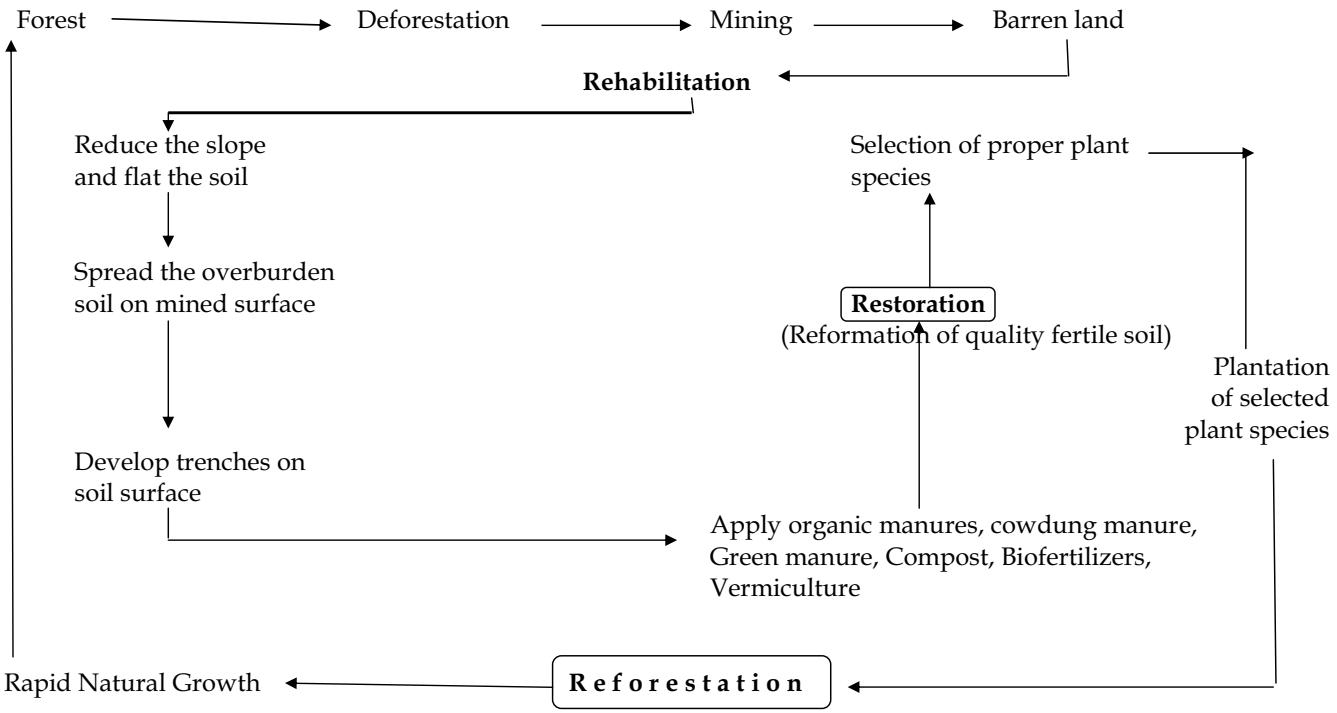


Table - 3 : Tree Species for Reforestation in Mining Areas

1. *Acacia catechu* (L.f) Willd.
2. *Acacia chundra* (Roxb.ex Rottl.) Willd
3. *Acacia nilotica* (L.) Willd.ex Del.
4. *Adenanthera pavonina* L.
5. *Aegle marmelos* (L.) Corr.
6. *Albizzia lebbeck* (L.) Willd.
7. *Alstonia scholaris* (L.) R.Br.
8. *Anacardium occidentale* L.
9. *Artocarpus heterophyllus* Lam.
10. *Azadirachta indica* Juss.
11. *Bambusa arundinacea* (Retz.) Willd.
12. *Bauhinia purpurea* L.
13. *Bombax ceiba* L.
14. *Careya arborea* Roxb.
15. *Ceiba pentandra* (L.) Gaertn.
16. *Dalbergia latifolia* Roxb.
17. *Dalbergia sissoo* Roxb. ex DC.
18. *Delonix regia* (Hook.) Raf.
19. *Dendracalamus strictus* (Roxb.) Ness.
20. *Emblica officinalis* Gaerth
21. *Erythrina varigata* L.
22. *Ficus exasperata* Vahl.syn.F.asperima Roxb.
23. *Ficus benghalensis* L.

24. *Ficus callosa* Wild.
25. *Ficus recemosa* L.
26. *Garcinia indica* (Thou.) Chois
27. *Garcinia xanthochymus* Hook.f.
28. *Gliricidia sepium* (Jacg.) Kunth.ex Stend.
29. *Hydnocarpus pentandrus* (Buch.-Ham.)
30. *Leucaena latisiligua* (L.) Gills.
31. *Magnifera indica* L.
32. *Memecylon umbellatum* Burm.f.
33. *Mimusops elengi* L.
34. *Morus alba* L.
35. *Parkia biglanduolsa* Wt.
36. *Peltophorum pterocarpum* (DC.) Baker
37. *Prosopis julifera* (Sw.) DC.
38. *Santalum album* L.
39. *Sapium insigne* Benth.
40. *Sterculia urens* Roxb.
41. *Strychnos nux-vomica* l.
42. *Syzygium cumini* (L.) Skeels
43. *Syzygium zeylanicum* (L.) DC.
44. *Tamarindus indica* L.
45. *Tectona grandis* L.f.
46. *Terminalia cuneata* Roth.
47. *Terminalia bellirica* (Gaerth.) Roxb.
48. *Terminalia catappa* L.
49. *Terminalia chebula* Retz.
50. *Terminalia paniculata* Roth.
51. *Terminalia tomentosa* Wt.
52. *Trema orientalis* (L.) Bl.
53. *Ziziphus mauritiana* Lamk.
54. *Pongamia pinnata* (L.) Pierre.
55. *Holoptelea integrifolia* (Roxb.) Pl.
56. *Pterocarpus marsupium* Roxb.
57. *Gmelina arborea* Roxb.

Shrub species for reforestation in mining areas

1. *Dodonea angustifolia* L.f.
2. *Helicteres isora* L.
3. *Holarrhena pubescens* (Buch.-Ham.) Wall.
4. *Phyllanthus reticulates* Poir
5. *Ziziphus rugosa* Lamk.