Volume 5, No. 1 (April 2019 - September 2019) & Volume 5, No. 2 (October 2019 - March 2020) - Combined Issue
ISSN: 2455-7846

IUT Journal of Advance Research and Development

Published by
ICFAI University Tripura
Kamalghat, Mohanpur, Agartala -799210, Tripura (W)
Ph: 0381-2865752/62,
Toll Free No. 18003453673
Website: www.iutripura.edu.in

Volume 5, No. 1 (April 2019 - September 2019) & Volume 5, No. 2 (October 2019 - March 2020) - Combined Issue
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MESSAGE FROM THE DESK OF EDITOR IN CHIEF

The Chief Editor and Editors of the research journals of Management, Engineering, Law, and Education streams i.e. IUT Journal of Research and Development (JARD) would take it as their duty to express the deep gratitude to the contributors and readers of current volume.

We feel proud to bring the current issue of the online IUT Journal of Advance Research and Development. We believe that, economic growth should translate into the happiness and progress of all. Along with it, there should be development of art and culture, literature and education, science and technology. We have to see how to harness the various resources of the nation for achieving the common good and for inclusive growth. Keeping in tune with this noble idea, the current issue of IUT-JARD has addressed several contemporary issues covering diversified field.

This issue needs an integrative and a holistic approach to the solution. Finally, the information contains in this journal has been published by the IUT obtains by its authors from various sources believed to be reliable and correct to the best of their knowledge, and publisher is not responsible for any kind of plagiarism and opinion related issues.

Dr. Dhananjoy Datta

(Chief Editor)

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Level of Attainment of the Core Competencies Needed among the Accounting Students of a Globally Recognized Higher Education Institution

Edison C. Mayo Jr.
Batangas State University – Lipa City
Lipa City, Batangas, Philippines, 4217
E-mail: edison.mayo.jr.29@gmail.com

Abstract

To perform effectively in today's rapidly changing environment, accounting graduates should possess the necessary core competencies. This means they need to have knowledge, skills, and values that go way beyond being whizz with numbers and excel. With this, this study was conducted to assess the level of attainment of skills requirements among accounting students. It also aimed to find out if there is a significant difference between the levels of attainment when grouped according to profile of the respondents. Quantitative and descriptive type of research through survey was administered among 282 accounting students in Batangas State University using weighted mean to treat and analyzed the gathered data. The determination of significant difference was subjected to T – test, and ANOVA. Based on the statistical treatments done by the researcher, it was shown that majority of accounting students were 19 years old – 21years old, female, in fourth year level, and had a previous general weighted average of 1.51 – 2.00. The findings further revealed that accounting students attainment of skills requirements in terms of intellectual skills, interpersonal skills and communication skills was high. It was also found out that when grouped according to previous general weighted average, it had a significant difference to intellectual skills but not to interpersonal and communication skills. However, there were no significant difference between the attainment of skills requirement when grouped according to other profile variable such as age, sex, and year level. In light of the observed findings, recommendations were given by the researcher for the consideration.

Keywords: Core competencies, Communication skills, Intellectual skills, Interpersonal skills, Professional skills

Introduction

Quality education is a vital formation to achieve economic and social progress especially at the start of the 21st century because of the pressure of global competitiveness. With the challenge of global competitiveness, pursuit of excellence in the educational programs among institutions of higher learning has become part of the agenda through the years of the administration in their respective institution. Commission on Higher Education (CHED) addresses the development issues and challenges, through improvement of the quality and international comparability of programs in higher education institutions; the quality of students entering the higher education institutions; the performance and employability of graduates; and of the responsiveness of higher education programs to labor market demands and national development needs.

This changing nature of the higher education market and the structure of graduate labor markets have placed increased emphasis on the employability of accounting graduates. However, the changing and expanded role of today's accounting professional's means they also need a range of skills that go way beyond being whizz with numbers and Excel. Within the accounting discipline, recognition for the increased complexity and rapid change in the professional role has emphasized the need for graduates with higher levels of skills. To meet the challenges brought about by these changes, it is essential that University accounting programmes provide graduates with strong essential skills to gain employment and make an immediate contribution to a business (Albrecht & Sack, 2000).

The increasing importance of skills development is reflected in the CHED Memorandum Order No. 03, Series of 2007 (Revised Policies and Standards for Bachelor of Science in Accountancy), and CHED Memorandum Order No. 50, Series of 2008 (Policies and Standard for Bachelor of Science in Accounting Technology). The core competencies for accountants identify the knowledge, skill, and values considered necessary to perform effectively in today's rapidly changing environment. Skills that the graduate should possess include intellectual, interpersonal, and communication. Intellectual skills are the ability to carry out abstract logical thinking and learn the process of critical thinking. An interpersonal skill is the ability of graduates to work in groups and being a team player. While communication skills refers to an active listening skills and the ability to communicate effectively one's points of view, both orally and in writing, at all organizational levels; being able to justify one's position, deliver impressive presentations and to persuade and convince others.

There is an extensive literature on the skills expected of accounting graduates. Though majority of these studies were carried out to focus only on the importance of various skills as viewed by academics, employers, students or graduates and professional accounting bodies. These studies further

suggest that accounting programmes need to meet the expectations and needs of employers that is harmonious with the requirements of the real world (Bui & Porter, 2010; Jackling & De Lange, 2009). Another important implication is that a number of vital skills are needed to be developed within the accounting curriculum (Watty, Jackling, and Wilson, 2014). Lawson et al. (2014) further point out that most accounting curricular tend to focus on preparing graduates as entry – level accountants rather than for long – term career demands.

With this, it is now a challenge to work out on how to incorporate the development and assessment of a wide range of skills. One of the main constraints as identified in the literature is that there is insufficient time to help students develop a wide range of skills as the accounting curriculum is already crowded with required technical content (Stoner & Milner, 2010; Willcoxson et al., 2010). Apart from the time factor, other possible constraints include the lack of expertise and resources in assisting students with skills development.

As it is not practical to cover all the required skills expected of employers, accounting educators perhaps need to prioritize certain skills that are deemed most important in the workplace. With this, the researcher came up with the study to determine the attainment of skills requirements among accounting students. Specifically, the study was carried out to determine the profile of the respondents in terms of age, sex, year level, and previous general weighted average; to assess the level of attainment on core competencies needed in terms of skills requirements such as intellectual, interpersonal, and communication; and to ascertain if there is a significant difference on the assessed attainment of skills requirements when grouped according to profile.

The results of the study provide valuable insights for accounting educators into employers' demands for particular skills, and will assist in identifying what needs to be developed during students' undergraduate studies. Students also need to be aware of the skills that are in demand and be proactive in developing them so as to become employable and able to add value to a firm. The findings should also be of interest to accounting professional bodies as their professional programmes are aimed at developing the skills required by employers and ensuring their new members are capable of developing successful professional careers.

Review of literature

Mason, Williams and Granmer (2009) indicated that being successful in the labor market is defined by securing employment in jobs that will make use of the skills and knowledge that have been gained during the studies of the student. Unfortunately there are many job opportunities but many young people do not have the necessary skills to be employed. It has been reported that this is a result of the

important non-technical and professional skills not being adequately taught in accounting courses (Kavanagh & Drennan, 2008).

On the other hand, within the profession, competitive pressures and technology have led to expectations that accounting graduates demonstrate additional competencies with increasing importance given to non – accounting capabilities and skills. These capabilities and skills are important because they enable the professional accountant to make successful use of the knowledge gained through education (IFAC, 1996). As a result, accounting professionals need to master not only the technical skills of their job but also various 'essential skills', including the ability to communicate, coordinate, work under pressure and solve problems (Albrecht & Sack, 2000). The demand for such skills and competencies has caused a change in accounting education, providing both technical skills and soft skills to accounting students in order to adequately prepare them for the business world in the 21st century (Mohamed & Lashine, 2003).

Moreover, accounting professionals looking to advance their careers will need solid technical skills, as they always have, but increasingly they also will need soft skills, according to Jaafar S.B. (2018). Technical skills refer to general accounting and financial reporting knowledge, and SEC reporting expertise for public companies. They also include internal audit and financial analysis skills, knowledge of software systems and competencies in tax planning and code compliance. Soft skills include written, verbal, presentation, and interpersonal capabilities. Other research conducted by the Chartered Institute of Personnel and Development has included time management, listening skills, assertiveness and negotiation and influencing among important soft skills to possess for successful career development and contributions to accounting and finance organizations (Jarvis, 2005).

There is wide support in the literature for the notion that employers are looking for much more than specific academic subject knowledge in their new employees, and while the 'perfect home' for imparting these skills has not yet been finally agreed on, there is merit in the expectation that tertiary accounting education should provide graduates with these skills (Ballantine & McCourt Larres, 2009).

Flood & Wilson (2008) emphasised that accounting education must foster students' understanding of the principles and concepts which underpin accounting and business practices. From these perspectives, it seems that the purpose of accounting education has incorporated the provision of a range of skill sets over the years with an emphasis on providing students the ability to adapt to the changing environment in the workplace, and deal with challenges that they will face in both their professional and personal lives. Kermis & Kermis (2010) also argue that technical skills are necessary, but not sufficient for a successful accounting career that includes the individual's selection, retention

and advancement. The skills that should be incorporated in the tertiary accounting education include career skills, emotional intelligence, time management, and other soft skills such as teamwork skills and public speaking.

Methodology

The descriptive design was utilized to answer the objectives of the study. The respondents of this study were the 282 accounting students in Batangas State University. The researcher obtained the list of enrolled accounting students for 2nd semester, A.Y. 2016 – 2017 and came up with 282 sample size using Raosoft in the different campuses of the university that is offering accounting courses such as Pablo Borbon Main I Batangas City, JPLPC Malvar, Lipa City, and Lemery. Accounting students of Batangas State University campuses were chosen as the respondents since the objective of this program is to produce professionals who have acquired professional competence required in local and international industry. In order to select the respondents from the population, the researcher used stratified proportionate sampling. With proportionate stratification, the sample size of each stratum is proportionate to the population size of the stratum. This means that each stratum has the same sampling fraction. Stratified random sampling is a method of sampling that involves the division of a population into smaller groups known as strata. In stratified random sampling, or stratification, the strata are formed based on members' shared attributes or characteristics (Calmorin & Melchor, 2007).

Moreover, survey questionnaires were used as primary gathering instrument. It was divided into two parts. Part I composed of the demographic profile of the respondents which consist of age, sex, year level, and previous general weighted average. Part II consisted of questions about attainment of different professional skills requirement such as intellectual, interpersonal and communication. This part of the questionnaire consisted of 30 questions. The 1 – 10 questions refers to intellectual, 10 – 20 questions refers to interpersonal, and 21 – 30 questions refers to communication. Through a checklist, the respondents answered the appropriate column by checking it that ranges from 1 to 4 which corresponds to very low, low, high, and very high.

The researchers personally approached the Executive Directors and Dean of Colleges of the campuses in order to secure the permission needed. After that, the researcher constructed a survey questionnaire which is the instrument of the study. The survey questionnaire underwent validation process through the industry experts as well as the statistician. The researcher also conducted dry run process to determine the reliability and validity of the questionnaire. The researcher performed a dry run through distributing questionnaire to thirty (30) accounting students of De La Salle Lipa. The result of the dry run showed a Cronbach's alpha of 0.946, 0.973, and 0.859 for intellectual skills,

interpersonal skills, and communication skills, respectively, which indicated a good result. Considering the internal consistency, the questionnaire is said to be reliable. From the dry run procedures, the researcher proceeded to the actual survey.

Lastly, responses were tabulated and interpreted using frequency/percentage to describe the profile of the respondents; weighted mean to determine the assessment of the respondents on attainment of professional skills; t-test to determine the significant difference on the assessment of the respondents on the attainment of professional skills when grouped according to sex, and year level; and f-test (ANOVA) to determine the significant difference on the assessment of the respondents on the attainment of professional skills when grouped according to age, and previous general weighted average.

Results and discussion

This part of the paper presented the result of the survey and observation which the researcher had conducted. It also included the discussions and interpretations of the gathered data through the use of various statistical tools. A total of 282 respondents became the basis of the analysis.

Profile of the Respondents

This section provides information about age, sex, year level, and previous general weighted average of the accounting students in the Batangas State University.

Table 1. Distribution of the respondents in terms of their age

Age	Frequency	Percentage
16 years old – 18 years old	76	27
19 years old – 21 years old	192	68
22 years old – 24 years old	13	4
25 years old and above	1	1
Total	282	100

The table showed that the biggest number of respondents was 192 accounting students ranging at the age of 19 – 21 or 68 percent followed by 76 or 27 percent in the age of 16 – 18. In the age of 22 – 24 there were 13 respondents or 4 percent. However, the lowest number of respondents by the age 25 and above has only 1 or 1 percent. This simply mean that since most of the respondents were at the age of 19 to 21, this are the common age range of college students in the Philippines because of the educational system.

Table 2. Distribution of the respondents in terms of their sex

Sex	Frequency	Percentage
Male	62	22
Female	220	78
Total	282	100

As shown in Table 2, the highest percentage of respondents was female that has 78 percent or 220 respondents. However, the male students were only 22 percent or 62. The results explained that the genders percentage and number of respondents are in distant to each. Most of the students who took up accounting programs were commonly females because men are willing to work in the field of engineering. In the contrary, Burnett (2003) stated that women were likely to perform less than men and men have more ability to cope with accounting subjects.

Table 3. Distribution of the respondents in terms of their year level

Year Level	Frequency	Percentage
Third	126	45
Fourth	156	55
Total	282	100

Table 3 showed the highest number of respondents was fourth year students having 156 or 55 percent followed by third year students comprising 126 or 45 percent. Based on the researcher observation, the reason behind why most of the respondents were fourth year is that they are the one who has the most number of enrollees based on the data by University Registrar.

Table 4. Distribution of the respondents in terms of their previous general weighted average

Previous General Weighted Average	Frequency	Percentage
1.00 – 1.50	16	6
1.51 – 2.00	161	57
2.01 – 2.50	95	34
2.51 – 3.00	10	3
Lower than 3.00	0	0

Total	282	100

Table 4 showed that the biggest number of respondents were 161 or 57 percent that belong to the students with 1.51-2.00. There are 95 respondents or 34 percent that falls to students with 2.01-2.50 previous general weighted average followed by 1.00-1.51 of 16 or 6 percent. The lowest number of respondent of 10 or 3 percent was those students having 2.51-3.00 previous general weighted average. However, there are no lower than 3.00 respondents. In the analysis of the researcher, most of the respondents have a general weighted average of 1.51-2.00 which clearly explained that most accounting students are willing to pursue their desired program. Since most of the students were scholars they are eager to comply with the grade requirement. In addition to, general weighted average reflects human capital acquisition at a time when young adults are close to permanent entry into the labor force. Most of the employers tend to favour for those who have high general weighted average. They also screen out the job candidates and they mostly prefer a candidate with a higher general weighted average (Stoner & Milner, 2010).

Assessment on the Attainment of Skills Requirement

Table 5. Attainment of skills requirement among accounting students in terms of intellectual skills

I…	Weighted Mean	Verbal Interpretation
1. fully use my imagination and creativity to innovate and develop ideas to carry out plan.	3.37	High
2. think critically and analytically to resolve issues in a short period of time.	3.18	High
3. have the ability to reflect on my learning in setting target plans.	3.22	High
4. weigh alternative strategies to carry out plans.	3.19	High
5. have the ability to deal with problems and arrive at positive ways of overcoming them.	3.26	High
6. possess intellectual openness and curiosity.	3.33	High
7. have efficient problem solving skills.	3.06	High
8. am equipped with research and information-retrieval skills and have the ability to use them effectively.	3.13	High

9. have the ability to meet the different demands of daily life.	3.22	High
10. have the mental autonomy that allows me to actively participate in daily activities and to effectively reflect toward life.	3.22	High
Composite Mean	3.22	High

It can be viewed from the table 5 that in terms of intellectual skills to the respondents' performance has a composite mean of 3.22 which has a verbal interpretation of high. Fully use of imagination and creativity to innovate and develop ideas to carry out plan got 3.37 mean with a verbal interpretation of high, followed by possess intellectual openness and curiosity with 3.33 mean and a verbal interpretation of high. Having the ability to deal with problems and arrive at positive ways of overcoming them has resulted of 3.26 mean with a verbal interpretation of high. However, have efficient problem solving skills showed the lowest mean of 3.06 and verbal interpretation of high. It is clearly stated that students who took accounting programs possessed such skills which can be used in problem solving, making decisions and judgment which requires intellectual ability of a person.

According to Hancock et.al. (2009), accounting graduates should possess intellectual skills that includes interpretation which is the ability to comprehend and express the meaning or significance of a wide variety of experience, situations, data, events, judgements, convention, beliefs, rules , procedures or criteria and evaluation that is to assess of statements or other representations which accounts or descriptions of a person and to assess the logical strength of the actual or intended inferential relationships among statements, descriptions, questions or other forms of representation.

Table 6. Attainment of skills requirement among accounting students in terms of interpersonal skills

I am/I…	Weighted Mean	Verbal Interpretation
1. able to develop and contribute positive inputs in group-based projects.	3.29	High
2. remain calm under pressure in different context.	3.16	High
3. have the willingness to face and learn from my mistakes, and the openness to listen to feedbacks.	3.49	High
4. have the ability to interact with people of	3.40	High

different personality.		
5. have the ability to work in groups and to understand others' behavior and work potentials.	3.45	High
6. have the ability to emphasize and work productively with people from a wide range of backgrounds.	3.29	High
7. able to develop and use networks of colleagues to help solve key issues or problems.	3.28	High
8. have the willingness to listen to different point of view before making a decision.	3.54	Very High
9. motivate others to achieve more.	3.45	High
10. understand others by listening to and interacting with them.	3.54	Very High
Composite Mean	3.39	High

Viewed in the table that in terms of interpersonal skills of attaining professional skills requirements of the respondents were found to be high with 3.39 as composite mean. It can be seen that understanding others by listening to and interacting with them and have the willingness to listen to different point of view before making a decision got 3.54 composite mean with verbal interpretation of high followed by have the willingness to face and learn from my mistakes, and the openness to listen to feedbacks with 3.49 composite mean and verbally interpreted as high and have the ability to work in groups and to understand others' behavior and work potentials and motivate others to achieve more with 3.45 as composite mean and verbally interpreted as high. However, remain calm under pressure in different context got the lowest with 3.16 mean and verbally interpreted as high.

Accounting students were open in accepting others point of view in order to gain more knowledge and also to keep their track on the right way until they reach their desired goals. Accounting students with underdeveloped interpersonal skills may face difficulties in finding employment. On the other hand, when accounting students display well-developed interpersonal skills, there are improved outcomes for clients. Clients are delighted when accountants exceed their exceptions (De Lange, Jackling, and Gut, 2006).

Table 7. Attainment of skills requirement among accounting students in terms of communication skills

I/I am…	Weighted Mean	Verbal Interpretation
1. have the ability to state and defend opinion or point of view in various settings.	3.25	High
2. have the ability to receive and transmit information through reading, listening, writing and speaking.	3.38	High
3. able to listen attentively to gain information and analyze opposing point of views.	3.40	High
4. have the ability to communicate ideas both oral and written form.	3.33	High
5. able to present and communicate information graphically, mathematically and pictorially.	3.21	High
6. have the ability to effectively receive information.	3.40	High
7. able to justify one`s position, deliver impressive presentations and persuade others.	3.25	High
8. able to ask clear, concise and relevant questions to obtain necessary information to perform a task.	3.32	High
9. have the ability to find, organize and use information and other data from a variety of sources such as printed materials, online resources and visual media.	3.36	High
10. have the ability to present and defend points of view and arguments verbally.	3.33	High
Composite Mean	3.32	High

It can be viewed in table 7 that communication skills have a verbal interpretation of high with composite mean of 3.32. It can be seen that question number 3 containing able to listen attentively to gain information and analyze opposing point of views an question number 6 with have the ability to effectively receive information both have a verbal interpretation of high with 3.40 weighted mean. It

was followed by have the ability to receive and transmit information through reading, listening, writing and speaking that has 3.38 weighted mean and verbal interpretation of high. Having the ability to find, organize and use information and other data from a variety of sources such as printed materials, online resources and visual media got a weighted mean of 3.36 and verbal interpretation of high. The lowest which is able to present and communicate information graphically, mathematically and pictorially has the weighted mean of 3.21 with verbal interpretation of high.

Communication as one of the skills requirements was viewed by the students as the reason for them to connect to one another and also to creatively build their foundation of knowledge by adapting the environment that surrounds them. Communication skills play a very important role in the development of an accounting profession. These skills are required of accountants to transfer information easily and defend views to clients and peers. But there is always a problem with regard to the development of communication skills of accounting students. This can attributed to the inclusion of only one writing course in the accounting curriculum and the naïve exposure of educators to different types of communication activities (Rackliffe & Ragland, 2016).

Significant Difference on the Assessed Attainment of Skills Requirement when Grouped According to Profile.

Table 8. Difference on the assessed attainment of skills requirement in terms of age

Skills Requirement	computed F-values	p-values	Decision	Verbal Interpretation
Intellectual	1.045	0.373	Accept Ho	Not Significant
Interpersonal	1.035	0.377	Accept Ho	Not Significant
Communication	0.368	0.776	Accept Ho	Not Significant
Overall	0.902	0.441	Accept Ho	Not Significant

In Table 8, it can be scrutinized that assessment of the respondents on the attainment of skills in terms of intellectual, interpersonal, and communication obtained computed F-values 1.045, 1.035 and 0.368; respectively. It likewise obtained corresponding p-values of 0.373, 0.377 and 0.776. Such p-values are higher than 5 percent level significance that failed to reject the null hypothesis. This implies that the respondents had the same views on the attainment of skills in terms of intellectual, interpersonal, and communication when grouped according to age.

In addition, the overall assessment on the attainment of skills when grouped according to age obtained a computed F-value of 0.902 with a p-value of 0.441 which is higher than 5 percent level of

significance. This failed to reject the null hypothesis. This indicates that the respondents do not differ on their overall assessment on the attainment of skills requirements when grouped according to age.

Table 9. Difference on the assessed attainment of skills requirement in terms of sex

Professional Skills Requirement	computed T-values	p-values	Decision	Verbal Interpretation
Intellectual	1.872	0.062	Accept Ho	Not Significant
Interpersonal	-0.432	0.666	Accept Ho	Not Significant
Communication	0.465	0.643	Accept Ho	Not Significant
Overall	0.690	0.491	Accept Ho	Not Significant

It can be seen in the table above that responses of the respondents on the attainment of skills requirements in terms of intellectual, interpersonal, and communication obtained computed absolute t-values ranging from 0.432 to 1.872. It likewise obtained corresponding p-values ranging from 0.062 to 0.666. Such p-values are higher than 5 percent level significance that failed to reject the null hypothesis. Thus, there is no significant difference on respondents' attainment of skills requirements in terms of intellectual, interpersonal, and communication when grouped according to sex.

The overall assessment on attainment of skills requirements when grouped according to sex obtained a computed t-value of 0.690. It likewise obtained a p-value 0.491. Such p-value is higher than 5 percent level significance that failed to reject the null hypothesis. Thus, the overall assessment of the respondents on the attainment of skills requirements is not significantly different when grouped according to sex.

Table 10. Difference on the assessed attainment of skills requirement in terms of year level

Professional Skills Requirement	computed T-values	p-values	Decision	Verbal Interpretation
Intellectual	-1.774	0.077	Accept Ho	Not Significant
Interpersonal	-0.483	0.630	Accept Ho	Not Significant
Communication	-1.860	0.064	Accept Ho	Not Significant
Overall	-1.597	0.111	Accept Ho	Not Significant

The respondents' assessment on attainment of skills requirements in terms of intellectual, interpersonal, and communication obtained computed absolute t-values ranging from 0.483 to 1.860

with p-values ranging from 0.064 to 0.630. Such p-values are higher than 0.05 level significance that failed to reject the null hypothesis. This indicates that the respondents had the same views on the attainment of skills requirements in terms of intellectual, interpersonal, and communication when grouped according to year level.

The overall assessment on the attainment of skills requirements when grouped according to year level obtained a computed absolute t-value of 1.597 with a p-value of 0.111 which is higher than 5 percent level of significance. This failed to reject the null hypothesis. This indicates that the respondents do not differ on their overall assessment on the attainment of skills requirements when grouped according to year level.

Table 11. Difference on the assessed attainment of skills requirement in terms of previous general weighted average

Professional Skills Requirement	computed F-values	p-values	Decision	Verbal Interpretation
Intellectual	5.691	0.001	Reject	Significant
Interpersonal	1.662	0.175	Accept Ho	Not Significant
Communication	1.108	0.346	Accept Ho	Not Significant
Overall	2.461	0.063	Accept Ho	Not Significant

The assessment of the respondents on the attainment of skills requirements in terms of intellectual obtained a computed F-value of 5.691 with a p-value of 0.001. Such p-value is less than 5 percent level of significance that led to the rejection the null hypothesis. Thus, there is a significant difference on the attainment of skill requirement in terms of intellectual when grouped according to previous general weighted average.

On the other hand, the responses on attainment of skills requirements in terms of interpersonal, and communication obtained computed F-values of 1.662 and 1.108; respectively. It likewise obtained corresponding p-values of 0.175 and 0.346. Such p-values are higher than 5 percent level significance that failed to reject the null hypothesis. Thus, there is no significant difference on respondents' attainment of skills requirements in terms of interpersonal, and communication when grouped according to previous general weighted average.

The overall assessment on attainment of skills requirements when grouped according to previous general weighted average obtained a computed F-value of 2.461 with a p-value of 0.063 which is higher than 5 percent level of significance. This failed to the reject the null hypothesis. This indicates

that the respondents do not differ on their overall assessment on the attainment of skills requirements when grouped according to previous general weighted average.

Conclusion

In a globalized business and employment world and with advances in technology, the issue of graduate's core competencies has become increasingly important. To know the level of attainment of these competencies necessary to accounting graduates, the study examines the skills indicated in the CMO 3, s. 2007, and CMO 50, s. 2008 as they provide an objective indication of the important skills required in the accounting profession.

The analysis shows that majority of the respondents were 19 – 21 years old, female, in their fourth year level, and had a previous general weighted average of 1.51 – 2.00. The general pattern of formal education in the Philippines followed four stages: pre-primary level (nursery and kindergarten) offered in most private schools; six years of primary education, followed by six years of secondary education. College education usually takes four, sometimes five and in some cases as in medical and law schools, as long as eight years. Moreover, a recent change in the Philippines' educational system was implemented starting in 2011. The K to 12 education was signed into law back in 2013, adding three years to the country's basic education curriculum. The new K to 12 curriculum guide requires all Filipino students to have one year of kindergarten, six years of elementary schooling (grades 1 to 6), four years of junior high school (grades 7 to 10), and two years of senior high school (grades 11 to 12). Age trends can be examined using either average or median age. Average age was expected to be skewed – while the vast majority of students will be in their late teens and early 20s, older adults also represent a significant portion of the student population. More women finish college than men in the Philippines, but this has yet to be reflected in the work force. Filipino women's gains in higher education do not necessarily translate to social and economic advancement. Achieving higher general weighted average is a good indication since it is use as a measurement for students' performance. Employees mostly prefer professionals with a higher cumulative general weighted average.

The results further shows that based on the summarized results on the assessment of attainment of skills requirements in terms of intellectual, interpersonal, and communication skills of accounting students, the respondents showed a high attainment of professional skills. It revealed a composite mean of 3.22 for intellectual skills, 3.39 for interpersonal skills, and 3.32 for communication skills. Accounting students, therefore, attain a multitude of skills but placed more emphasis on interpersonal skills. Although there was slight difference between the skills, the three mentioned skills were almost the same in terms of attainment by the accounting students. This probably reflects a change in the work

of accounting professionals from being the "backroom number cruncher" to an engaged business professional.

Furthermore, the researcher found out that when grouped according to previous general weighted average, it had a significant difference to intellectual skills but not to interpersonal and communication skills. However, there were no significant difference between the attainment of professional skills requirement when grouped according to other profile variable such as age, sex, and year level. It could mean that the skills requirement such as intellectual skills has a significant difference to the students pervious general weighted average and it could possibly affects how they perform their task in schools.

A limitation of the study is that the skills requirements stipulated in the CMO are taken as a valid representation of the requirements of employers. Other skills not mention do not mean that they are not required. If it is possible, other skills that are required of a potential employee must also be incorporated in the design of accounting programs. Future research could explore other core competencies such as knowledge, and values since it also play a crucial role in developing and enhancing the employability of accounting graduates. The findings of the study may assist in narrowing the gap between the competencies developed at the higher education institution and the requirements by prospective employers.

Recommendations

In the light of findings and conclusions arrived at this study, since higher education institutions play a key role in delivering the skills development, they should design their accounting programs so that graduates further achieve an intermediate level of proficiency in the skills: intellectual, interpersonal, and communication. This study shows that skills requirements are already attained by accounting students especially in terms of interpersonal skills but academics certainly need to focus further on the development of intellectual, and communication skills. Intellectual skills are also required by employers and the higher education institution should have already integrated the development of analytical and problem solving skills, as well as the need to pay attention to detail, into the accounting program. Skills requirements are interconnected in some way. So by helping students develop more the skills, it will also help them to be successful in their future profession.

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Volume 5, No. 1 (April 2019 - September 2019) & Volume 5, No. 2 (October 2019 - March 2020) - Combined Issue
ISSN 2455–7846

2

Decriminalising Adultury and its Pros

Pinky Banik
ICFAI Law School, ICFAI University, Tripura
Email: pinkyb2807@gmail.com

Abstract

Legal assessment of guideline of adulterous actions of married people under different legal systems demonstrates that the proviso of adultery is very much inclined by the social principles of sexual ethics which existed at the instant of formulating the lawful provision. Section 497 of Indian Penal code had been drafted earlier than 150-year. In India, in view of the fact that from its inception, it has been revolving into debatable controversy on numerous accounts.

Decriminalization of adultery has brought somehow fear in the people residing in India as it's only a ground for divorce. Hopefully couples will try their level best in giving respect to each other and not getting into a fantasy relationship. Now, fake relationship will not continue.

The objective behind the decriminalization of adultery is to treat it as a social wrong vis a vis a criminal liability as the law as it stood already had put women from outside its purview and a need was felt to do away with it altogether to prevent its abuse and misuse. The criminalization of adultery affected not only the individuals but also the children and the alternative remedies available under different laws for examples the family court were not relied upon. There prevailed a trend in the society to file criminal cases and use the same as a means of leverage in family disputes. Now with decriminalization both the men and women will be effected by the civil manner of dissolution of marriage.

Keywords: Legal, Adultery, Decriminalization, Relationship, Family

Introduction

Culturally and traditionally India is a land steeped in. Marriages in India are marked by a lot of customs, traditions, emotions and love that are religiously followed till date. Marriage is an impressive manifestation of the rich cultural heritage of the country.

Marriage was so important that as Indian parents out of few questions which comes in their mind first for their child, one of which is marriage. But in modernizing India over the years it is seen that Marriage as an institution has undergone a sea change. Both financial independence of women

and male chauvinism has its own contribution in changing the sanctity of marriage.

Love over the years starts to fade and the marriage becomes more of convenience. The marriage comes under undue stress due to the unfulfilled expectations of both spouses. Unhappiness creep sin and marriage becomes more of a load which one carries for various reasons immediate family, parents and society. Happiness and togetherness becomes the casualty in the processes which creates such a vacuum which cannot be filled. Under such as scenario the entry of the THIRD PERSON becomes inevitable.

Then the importance of love, respect, care and dependency offered strengthens the bond and give rise in the PARALLEL RELATIONSHIP….WHETHER RIGHT OR WRONG CAN BE DEBATABLE …BUTIT OFFERS MUCH WANTED RELIEF. It fulfills all almost all the emotions which had flown away like frightened birds in the legal bindings of so called marriage. Staying in the marriage or out becomes irrelevant as long as it gives peace of mind and tranquility. Knowingly it's correct or wrong there comes a time where marriage becomes a formality and new found love priority.

And this relationship of one of the married spouse of a married couple with some other person is termed as adultery.

As per Duhaime's Law Dictionary

Adultery is defined as Voluntary sexual intercourse between a married person and another person who is not their married spouse.

The Section 497 of Indian Penal Code read as follows for many years:

Adultery—

Whoever has sexual intercourse with a person who is and whom he knows or has reason to believe to be the wife of another man, without the consent or connivance of that man, such sexual intercourse not amounting to the offence of rape, is guilty of the offence of adultery, and shall be punished with imprisonment of either description for a term which may extend to five years, or with fine, or with both. In such case the wife shall [not] be punishable as an abettor.

But now the decriminalizing of it sounds as:

— **Section 497** of the Indian Penal Code was a section dealing with adultery. Not regular. Only a man who has consensual sexual intercourse with the wife of another man without his consent can be punished under this offence in India. If someone "lives in adultery", the partner can file for divorce. The law became defunct on 27 September 2018 by Supreme Court of India. The Supreme Court called the law unconstitutional because it "treats a husband as the master."

The change which has brought by Supreme Court was because it was violating the constitutional Articles which are the Article 14 and 15.Article 14 reads as follows: "The State shall not deny to any person equality before the law or the equal protection of the laws within the territory of India". Article 15 reads as follows: "The State shall not discriminate against any citizen on grounds only of religion, race, caste, sex, and place of birth or any of them."

And the punishment which was there for five years just for the man involved in it, if the husband of the married wife files a criminal case. But the wife wasn't been punished and was treated as victim. But now the law is equal for all there won't be any criminal act involved in it and punishment can't be given to the male involved here been the third party. That may merely be the opinion of divorce and might file for divorce.

Before going into the pros and cons of decriminalizing adultery let us scrutinize the reasons of adultery.

REASONS FOR ADULTERY:

1. Loss of commitment: It is been seen that after few years of marriage the one of the spouse just ignore the other person and forget the commitment what they have given to each other in the early years of marriage.

2. Lonesomeness of the partners: With phases of life the responsibility of the couple's increases in which one partner of the couple might feel lonely in absence of the other partner which leads to adultery.

3. Lack of sexual satisfaction with time: we people get bored with things more easily so in case of marriage if the sexual life is in mess with children, work or other things in life then generally sex life gets effected and the fishing with the big net is been done for getting more satisfaction outside the marriage. And the satisfaction is fulfilled.

4. Loss of love, affection and mental connection: As time is changing the emotions are fading. The embryonic wildness and energy that their partner brought before has no existence. With increase in distance lack of communication the love affection and mental connection just decreases and that has led to attracting new people in life.

5. Social media: Social networking sites have become an easy access to distance relationship. People can easily share their feelings, their status, upload pictures and videos on the click of a button. Immediate response by the online friend gives psychological stability which leads to euphoric happiness. This makes the person distant from his or her spouse or family members.

This leads jealousy and insecurity.

The precedents are just a few reasons for adultery but with different types of people and different psychologists the reasons may vary from one person to another.

Now let us look into the preview of Decriminalizing adultery and its pros.

Pros are the affirmative side of the statement in which we can relate and get an abstract idea what betterment it brought to the society in a vast.

PROS

1. Equality of man and women is prevailed. previously men was punished but now no punishment are there and its only a ground of divorce
2. Unsuccessful marriages will come to an end and people are free to get involved and have a new life in accordance to a have a peaceful life.
3. Two unhappy souls gets happiness from the parallel relationships. And the stress is decreased.
4. The amount of frustration and unhappiness of will decrease among the relationship.
5. It derecognizes husband's rights over that woman's body more than her own.
6. Every person is his own master, so a wife cannot be under her husband.
7. The importance of marriage will increase and the couple will respect each other from the beginning and save their marriage as it has become only the ground of divorce.
8. The importance of respect and love for each other as the couple will increase as they need to survive their marriage.

Adultery might bring upon some worst part also in the society and in the name of marriage which might lead to the social institution of marriage more painful and unhappy. Decriminalization of adultery has the demerits like

1. Shame and guilt: the people who are performing adultery loose the concept of the moral values leading to shame and guilt. For them everything is a new world of love as a myth.
2. Loss of trust and intimacy: As they are from broken relationships the trust among themselves or to anyone is lost. They don't even have intimacy as strong as it is required.
3. Divorce: The amount of divorces is increasing in a number which is decreasing the amount love and respect for the social institution marriage.

4. Loneliness and illness : loneliness and the amount of depression and trauma is increasing as the people are already from broken marriages and they come in a hope to be happy but that doesn't happen often and that extramarital results in more frustration and being lonely.

In this modern world though unfaithfulness is still disapproved, people do engage in adultery for various reasons. Marriages are suffering and many have ended due to infidelity. Though adultery in some cases may have specific valid reasons, but the act causes harm to a family. A **happy marriage** is a cocktail of open communication, honesty, hard work and love. Many people in the modern era have counteracted this statement. A marriage is never smooth sailing; it always encounters storms in its journey. It is how these storms are handled by both, makes a difference to the marriage. Instead of taking the easy path to adultery to solve the problem, talking with spouse to better understand the situation or going to a couple's councilor for one to one session.

Anguish, desire or a need for connection makes a person vulnerable and results in people seeking connection outside marriage. This may result to the end of a marital relationship. Happy couples always work hard to find out ways to improve their relationship.

Unfortunately, there's **no** right answer about what makes a **perfect marriage**. If you can't forgive, then perhaps, it's time to let go. And there's **no** such thing as a **perfect marriage**. There are relationships that work and those that don't.

So, when adultery is just now a ground for divorce so hope people will try to save their relationship by giving importance to each other in saving a marriage and treat each other with love and respect to get it back.

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Volume 5, No. 1 (April 2019 - September 2019) & Volume 5, No. 2 (October 2019 - March 2020) - Combined Issue
ISSN 2455–7846

3

Scope of Intervention on Different Non-farm Activities in Rural Livelihood

Geeta Debbarma[1], Sujoy Hazari[2] and Gokul Acharjee[3]*
[1]Faculty of Management Studies, ICFAI University, Tripura
*Email: geetadebbarma1@gmail.com *Corresponding author*
[2, 3] Assistant Professor, Faculty of Management Studies, ICFAI University, Tripura

Abstract

Custer Level Federation (CLF) is a platform of Self Help Groups (SHGs) for sharing of experiences to extend the members support to each other to improve the overall performance of SHGs. Primary and secondary data has been used to conduct the study. The primary data has been collected from five CLF offices which consist of three Blocks that is Matabari, Killa and Dumburnagar are covered under the study. The information regarding non-farm activities schemes of different departments is collected directly by visiting and communicating with the directors and managers of different departments. The study represents that, there is very less demand of loan for non-farm activity in all the five CLFs. Maximum SHGs demand loan for farm base activity and they are doing well in those activities by increasing their income from the previous year, which shows that all the works they do is effectively running, but to generate more income and to facilitate more self-employment opportunities by adopting the available schemes which is specially available for the poor or unemployed of rural area from which they can work their way out from the poverty.

Keywords: CLF, SHG, Non-farm, Livelihood

Introduction

All the non-agricultural activities are non-farm activities. The non-farm activities deal with the location or area which should be based on rural area where the activities should be taking place. The SHGs non-farm activities should be linked with different industries for developing their commercial linkage and to enable more opportunities to in the market. There are different types of non-farm activities like handicraft, rice mill, weaving, garment business, grocery shops, manufacturing sector, repairing, transportation, community service etc.

Bleahu (2002) conducted a study on rural non-farm livelihood activities in Romania and the

study reveals that non-farm farm activities are widespread and it is the main source of income for all household of the villages. Rao (2002) conducted a study on women selp-hep groups profile and from the study it is shown that women are very much willing to improve their livelihood and economic status. Mamoni et al. (2010) conducted a study on Impact of training of skill and knowledge development of rural women. The study revealed that majorities of the woman that is 80 per cent of the women were engaged in farming and 20 per cent and they had own business running from their homes like weaving, tailoring unit etc. Shylendra et al. (2010) conducted a study on the role of SHGs as micro-financial intermediaries: A study in Sabarkanth district of Gujarat the study shows that 55 per cent of members had adopted agriculture as their main occupation followed by 25 per cent of members were labours and 13 per cent were perceived dairy as their primary occupation. Vir and Koehler (2017) Conducted a study on SHG women involved in farm and non-farm activities and the study revealed that SHG women are also involved in economic activities and it present their opportunity to reached the disadvantaged women through interventions for adoption of better infant, maternal health care, young children and feeding practices.

Custer Level Federation (CLF) is a platform for Self Help Groups (SHGs) to share their experiences and to extend mutual support to each other for improving the overall performance of SHGs. The CLF will create the voice of SHGs and space for the poor in the village and which help them to initiate development and intervention for poverty reduction. Under this backdrop, the paper attempts to analyze the Scope of intervention on different nonfarm activities in rural livelihood with the following objective -

- To study scope of intervention on non-farm activities in Tripura Rural Livelihood Mission.
- To analyze the non-farm activities taken up by SHG from five CLF and total loan given for non-farm activity from federation.

Methodology

The study is conducted to find the scope of intervention on non-farm activities in rural livelihood by collecting different rural development farm and non-farm scheme and by analysing the non-farm activities taken up by SHGs from five CLF offices and total loan given for non-farm activity from federation. Study is based on primary and secondary data and the data consist of simple random sampling. In primary the data has been collected for the information regarding non-farm activity schemes of different departments is collected directly by visiting and interacting with the directors and managers and by collecting their official data, and by visiting and interviewing to Cluster coordinators of TRLM and few SHG members data relating to non-farm activity loan. Five CLF offices of three

Blocks that is Matabari, Killa and Dumburnagar are covered under the study. The information regarding non-farm activities schemes of different departments is collected directly by visiting and communicating with the directors and managers of different departments. Those departments and relevant scheme are like-

Sl. No	Departments	Scheme
1	Department of Industries and Commerce (DIC)	Prime Minister's Employment Generation Programme (PMEGP), SWAVALAMBAN
2	Khadi and Village Industries Commission (KVIC)	Prime Minister Employment Generation Programme (PMEGP), Honey mission
3	Directorate of Handloom, Handicraft and Sericulture • Handloom • Handicraft • Sericulture	• Centrally sponsored scheme (CSS), State Plan Scheme (SPS) Training programme for Skill up gradation • Integrated Sericulture Development Project (ISDP), Intensive Bivoltine Sericulture Development Project (IBSDP) • Setting up of Silk Processing & Printing Unit
4	Tripura industrial development cooperation (TIDC)	Tripura Industrial Investment Promotion Incentive Scheme (TIIPIS), North East Industrial Development Scheme (NEIDS)
5	Small Industrial Development Bank of India (SIDBI)	Stand Up Mitra, Udyamimitra

Result and discussion

Non-farm activities taken up by SHGs of Killa CLF, Dewan Bari CLF, Rajnagar CLF, Kalaban CLF and Laxmipur CLF in Tripura Rural Livelihood Mission (TRLM) are like grocery shops, Garment Business, Tailoring, Transportation services, Rubber trading/ roller machine, Dry fish, Vegetable Business, Power tiller, Restaurant, Canteen, Handicraft, Sweet shop, Tea stall, Parlour, Pub rice business, Wood business, Pottery/painting machine, Furniture business, Catering business etc.

Table 2. Loan disbursement on non-farm activities to Custer Level Federation (CLF) of SHGs (in Rs.)

Sl. no.	Activities taken up	Dhalai District	Gomati District			
		Dumburnagar Block	Killa Block	Matabari block	Matabari block	Killa Block
		Laxmipur CLF	Dewan Bari CLF	Rajnagar CLF	Kalaban CLF	Killa CLF
1	Grocery shops	578750	200000	100000	45000	275000
2	Garment Business	310000	866500	300000	15000	335000
3	Tailoring		133000	20000	5000	10000
4	Transportation services	435000	390000	136000	344000	296000
5	Rubber trading/ roller machine	-	-	-	100000	-
6	Drifish business	20000	110000			
7	Vegetable Business	-	-	4500	-	156000
8	Power tiller	100000	150000	90000	-	-
9	Restaurant	200000	-	62000	-	-
10	Canteen	-	-	-	-	-
11	Handicraft	-	-	50000	-	50000
12	Sweet shop	-	120000	30000	-	120000
13	Tea stall	-	-	-	-	-
14	Parlour	-	-	-	-	-
15	Pub rice business	-	-	-	-	-
16	Wood business	135000	-	-	-	-
17	Pottery/painting machine	-	-	45000	15000	-
18	Furniture	-	-	151000	-	-
19	Catering business	-	-	-	30000	-
	TOTAL	1778750	1969500	888500	554000	1242000

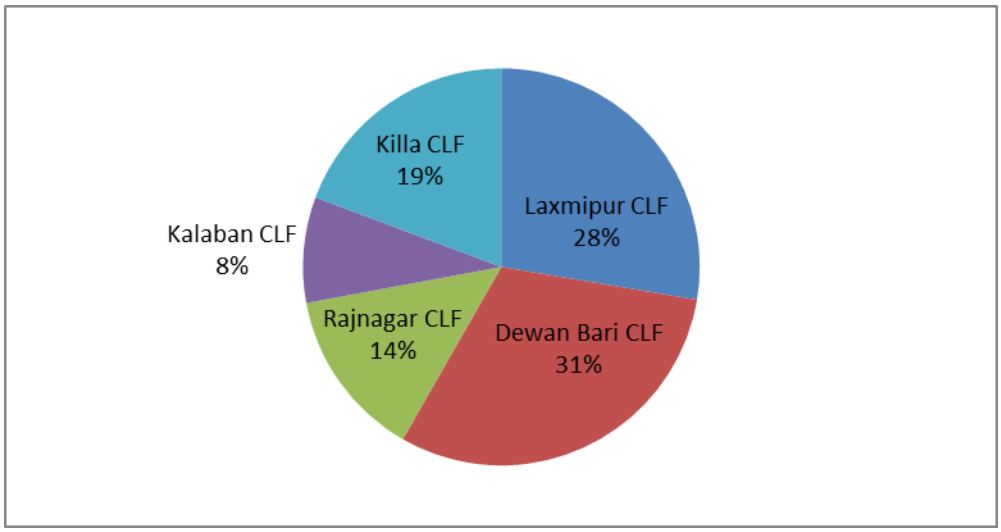

Figure 1. Total loan detail of all five CLF

Laxmipur CLF

As evident from the Table 2, Rs.1778750/- amount of loan has been given to the SHGs for non-farm activities in Laxmipur CLF. The loan is very much dominated by the grocery shop, and secondly vehicles (auto/van), and garment business is on the third position according to data analysis. After having an interview with the cluster coordinator it provides information that out of 87 loans, maximum loan is given for agricultural or farm based activities compared to non-farm.

Dewan Bari CLF

It is observed that maximum amount of loan has given for Grocery shops, out of Rs. 19,69,500/- demand of loan for grocery is dominated by SHGs of Dewan Bari CLF. And then second most loans distributed is for vehicle, and on the third it shows Garment business/shop compared to other activities like sweet shop, power tiller, Drifish and tailoring. And from the field study it also shows that their income is increasing as compared to previous year.

Rajnagar CLF

These results showed that the maximum amount of loan for non-farm activities in Rajnagar CLF is given for Garment business/shop, after then it is Grocery shop. According the interview out of more than crore loans given from CLF only 888500 has been given for non-farm activity to SHGs. Though there is less non-farm activities compared to farm activity their income is increasing more than last year.

Kalaban CLF

The results illustrate that maximum loan has given for transportation which is 62% of the total loan in non-farm activity. The total amount of loan given in non-farm in Kalaban CLF is Rs.554000 out of total loan Rs.8869000 which shows that very less investment in the non-farm other two farm and consumption. And there is only few non-farm activities taken up by SHGs.

Killa CLF

The results showed that loan details and non-farm activities the figure number 5 clearly shoes that out of total loan amount of Rs. 1242000 27% of the loan is given for the purpose of Garment shop/business, which is the maximum loan amount among the other 6 activities. And 24%, 22%, 12%, 10%, 4% and 1% for transportation, Grocery, sweet shop, Vegetable Business and Tailoring respectively are the loan that has given to the SHGs of Killa for non-farm activity.

However, it is observed that maximum non-farm loan distributed is in Dewan Bari CLF and secondly Laxmipur CLF, which shows maximum non-farm activities are taken up by this two CLF, and they are increasing their income every year, as their business are on a good position and there is a scope to expand further in future.

Conclusion

Most of the SHGs are dependent on agricultural farm base activity. And the study shows that it is very less non-farm activities which have been taken up by SHGs of five Cluster Level Federation (CLF) offices in TRLM. As TRLM was not participating in non-farm activity before, there is still gap remaining to bridge, though there are many available schemes from central and state government for rural development to access livelihood activities in farm and non-farm for enabling self-employment to generate income for rural poor. There is very less demand of loan for non-farm activity in all the five CLFs. Maximum SHGs demand loan for farm base activity and they are doing well in those activities by increasing their income from the previous year, study also shows that all the works they are doing is effectively running, but to generate more income and to facilitate more self-employment opportunities by adopting the available schemes which is specially available for the poor or unemployed of rural area from which they can work their way out from the poverty there is need to be intervention of those available productive schemes according to their convenient.

Acknowledgments

The authors are very grateful to the Tripura Rural Livelihood Mission for the liberal facilities provided for this study.

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Volume 5, No. 1 (April 2019 - September 2019) & Volume 5, No. 2 (October 2019 - March 2020) - Combined Issue
ISSN 2455–7846

4

The Right to Information (Amendment) Bill, 2019: How far is it Justifiable?

Puspita Sinha[1] and Madhurika De[2]*
[1, 2] ICFAI Law School, ICFAI University, Tripura
*Email: puspitasinha22@gmail.com *Corresponding author*

Abstract

A number of controversies arises after introduction of the Right to Information (Amendment) Bill, 2019 which according to many tries to jeopardize the independence of the institution of Central Information Commission. The article has raised a number of questions not so much on the text of law but on not following the proper procedure for introducing the Bill in the Parliament and absence of adequate justifications for the amendments.

Keywords: Constitution of India, Government, Right to Information

Introduction

India as a democratic country, rests on the principles of transparency and accountability and the principal political responsibility towards the second largest population in the world is to provide free flow of information for securing administrative, judicial and, legislative openness. The then Prime Minister Morarji Desai drove the Janata party legislature of 1977 in its political race manifesto guaranteed an "Open Government," and declared that it would not abuse the knowledge of administrations and administrative expert for individual and partisan closes. As a result, the Prime Minister formed a committee for better implementation of the Official Secrets Act, 1923.

The concept of participatory democracy is an inherent feature of the Indian Constitution, where citizens have a right to know, freedom to express their views, choice of information, and to live with dignity. Though, this particular right is not directly enshrined in the Indian Constitution but came up with the hands of the Right to Information Act, 2005 from the concept of "Right to Know." However, recently the Parliament has enacted the Right to Information (Amendment) Bill, 2019 on July 27, 2019 through by which sections 15, 16 and 27 of the Act are amended. These sections specifically prescribe about the tenure, salaries, allowances, and terms of service of the Chief Information Commissioner and

other Information Commissioners at the Centre and State level.

Till last year, the Right to Information Act, 2005 has been considered as one of the most successful and empowering legislation of our country, and the amendment as mentioned above caused a threat towards the independent efficiency of such Commissioners. In this paper, we have tried to analyse the pre and post effect of 2019 amendment to the Right to Information Act, 2005.

Significance of the RTI Act, 2005

The Right to Information Act, 2005 since the time of its enactment, on the one hand, has empowered the citizens by allowing them to seek information from various public authorities and on the other hand, held the Government accountable to its citizens and therefore can be considered as one of the most thriving legislation passed by the Indian Parliament since the time of independence.

In the absence of specific grievance address laws in the country, the Right to Information Act, 2005 in fact has given voice to the poor and marginalized sections of the society to access their basic entitlements. It can be considered as a voice to the voiceless people. The Act is one of the most people-friendly legislation passed by the Indian Parliament which become the model law on the right to information for many developing nations. A number of individuals have been benefited by applying the law.

However, the facts confirm that over ten (10) years after the Indian Government ordered the demonstration in 2005, the street to getting to data stays laborious. This demonstration has made both unmistakable and impalpable effect on the framework and the individual and also diminishes in debasement in the Government offices.

Criticism of the Right to Information Act, 2005

Like all other Government departments, the Central Information Commission and the State Information Commissions also have some drawbacks in their functioning. It was alleged that they are not performing their duties as are supposed to and could do much better.

At the Conference of Information Commissioners, the then Prime Minister of India Dr. Manmohan Singh raised his concern about the overwhelming RTI applications and consequently the misuse of the Right to Information Act, 2005. In recent times, the Act was attacked by the Parliamentarians from different political parties whereby they have highlighted the misuse of the specific legislation by citing examples such as that it was being used by tea vendors and labourers to seek information about the space program. Unfortunately, the Members of Parliaments have never explained how these can be considered as a misuse.

It is illogical to debate on the question of misuse of legislation because like all other laws in the

country Right to Information Act, 2005 is also subject to misuse. The difference lies in the fact is that the misuse of the RTI Act is less in numbers when compared to the other legislations which are in force in India.

Position of Information Commission under the RTI Act, 2005

The Information Commissions (ICs) under the Right to Information Act, 2005 are independent, have a high stature, extensive powers including the power to impose penalties on officials, and are the final appellate authority under the RTI law ("India's transparency regime?," 2017).

Commissions have been set up at the Centre (Central Information Commission) and in the States (State Information Commissions) (Sangathan, 2018). Each Commission consists of a Chief Information Commissioner and up to ten (10) Information Commissioners ("Explainer," 2019). Information Commissioners have the essential task of deciding appeals and complaints from persons who are unable to secure information by the Right to Information Act or are aggrieved by other violations of the law (IANS, 2017).

RTI applicants can file appeals to the Commission against decisions of the first appellate authority, or if they have not received any decision within the stipulated period. Therefore, Information Commissions are crucial to the RTI regime. There is a belief among many that the health of the regime primarily depends on how effective and pro-active the Information Commissions are ("How is the Modi govt botching up the RTI Act?," 2018). Right from the start, enormous public attention has been focused on the Information Commissions, and their performance has been extensively debated.

The Right to Information (Amendment) Bill, 2019

Proposal for amendments to the Right to Information Act, 2005 has been suggested just after six months from the time of its enactment, and this time it is the Right to Information (Amendment) Bill, 2019 which seeks to amend the Right to Information Act, 2005 ("Explainer," 2019).

The Right to Information (Amendment) Bill, 2019 tries to give the Union Government the power to fix the tenure, salaries, and terms and conditions of service of the Information Commissioners (ICs), including the Chief Information Commissioner (CIC) and the State Information Commissioners (SICs) ("Amid Opposition uproar, Lok Sabha nod to RTI amendment Bill | India News, The Indian Express," 2019). Concerning the term of office, section 15 of the RTI Act provides that the Chief Information Commissioner (CIC) and Information Commissioners (ICs) (at the Union and State level) will hold office for a term of five (05) years. The Bill removes this provision and states that the central Government will notify the term of office for the CIC and the ICs through rules made under the law ("Explainer," 2019).

Initially, the RTI Act provides that the salary of the CIC and ICs (at the Central level) will be equivalent to the salary paid to the Chief Election Commissioner (CEC) and Election Commissioners (ECs), respectively, and in the same manner the remuneration of CIC, ICs (at the State level) will be comparable to the salary remunerate to the Election Commissioners and the Chief Secretary, State Government. The Bill removes the parity between the ICs and ECs by having salaries, allowances, and terms and conditions of service determined by rules framed to this effect by the Union Government.

However, a safeguard has been provided in the Bill by removing the provisions in the RTI Act which says that at in case of the designation of the Chief Information Commissioner and Information Commissioners (at the Union and State level), while they are getting pension or an retrial reward for foregoing government service, their remuneration will be decrease by an amount proportionate to the pension ("Right to Information (Amendment) Bill, 2019," 2019). One more assurance has been given that the amendment, even if it takes effect, will be prospective in nature.

Section 27 has also been amended to give the Union Government power to make rules in respect of the matters mentioned in amended sections 15 and 16, and tenure, salaries, etc. of ICs.

Justifications offered by the Government in Support of the Amendment

According to the provisions of the Right to Information Act, 2005, the Central Information Commission and the State Information Commissions are not so different from the Election Commission of India, at least in terms of the importance of their constitutional duties, and the law had therefore rightly drawn equivalence between ICs and ECs in the context of their pay, allowance, and terms and conditions of service.

The Government asserts that the equivalence drawn between the Election Commission of India and the Central & State Information Commissioners are imperfect and through these amendments, it attempts to streamline greater transparency. The Election Commission of India which gets its validity from Article 324 of the Constitution of India is a constitutional body whereas the Central and State Information Commissioners are merely statutory bodies created by the provisions of the RTI Act, 2005. So, no comparison can be drawn between the Information Commission and Election Commission of India.

The Right to Information Act, 2005 has also given equal status to the CIC as that of the Judge of the Supreme Court. According to the Government this is also illogical because the judgments of the CIC can be challenged in the High Courts and giving equal status to both of them can never be justified. Thus, there are requirements for rationalizing the terms and conditions of service of the Information Commission.

An Analysis of the Amendment from Legal Perspective

The 2019 Amendment to the Right to Information Act is not only misleading, but it has also created lots of controversies. The amendment can be considered as an insult to the people of India who are immensely benefited through the use of the Right to Information Act, 2005. There lies a controversy behind introducing the Bill as the Government before enacting the Bill did not allow the Bill for public scrutiny.

Though the Information Commission is a statutory body but in reality, the Information Commission bridge up a gap between State and citizen. The Information Commission help State to fulfil its duty towards the citizen of India by securing the rights guaranteed by Article 19(1) (a) of the Indian Constitution which talks about freedom of speech and expression. Though the Constitution of India may not directly deal with the Information Commission but indirectly gives the independence of the Information Commission.

Now, with the introduction of the amendment, the present statute seeks to provide that the Information Commission has to work according to the satisfaction of the Government which means it is the Government who will decide every step taken by the Information Commission. Therefore, ultimately, it is up to the Government who will decide what information to disclose and what not to disclose. If any Information is denied to be disclosed then it can amount to violation of Article 19(1) (a) of the Indian Constitution thereby curtailing the rights guaranteed by the Constitution of India.

A probable reason for introducing the amendment maybe because the ruling party faces lots of controversy since 2014 after they came into power. Number of applications for seeking information under the Right to Information Act, 2005 were filed as people wants to know about issues such as Demonetization, Rafale Jet deal, foreign black money. The Information Commissioners have performed their duty sincerely and they stand ready to disclose information to the citizen as and when it was sought by them. Thus, it can be said that the 2019 Bill may have been passed with some mala fide intentions which violate not only people's right to seek information but also ultra vires the provisions of the Indian Constitution.

Another reason for opposing the Bill is that it was not sent to the Joint Select Committee as also to the Parliamentary Standing Committee for the purpose of consultation and discussion. Though the draft of the proposed amendment became public in 2018 when an attempt was made to pass the RTI Bill, no large-scale consultation or discussion has been conducted by the Government to take the feedback of the public on the Bill. Thus, it can be concluded that the Bill was not explain in a proper manner and also the Bill was not discussed extensively and without giving adequate explanation to the

Member of Parliament it was passed hurriedly.

There is a possibility that the Bill can be declared as unconstitutional as it encroaches upon the sovereign authority of the State. The power given to the Central Information Commission to determine the status of State Information Commission can be subject to violation of federal character of the Indian Constitution which has been decided by thirteen (13) judges bench of the Supreme Court in Kesavananda Bharati v. State of Kerala in 1973 (4 SCC 225) as the basic structure of Indian Constitution.

Conclusion

There is no doubt that laws passed by the legislature may have positive as well as negative impact in the society. The transition phase is the most challenging period for new legislation being accepted by the public. The positive side of the amendment according to the Government lies on the purpose that is minimum Government and maximum Governance, and moreover, this legislation is without any motivation and in good faith. Whereas if we analyse the manner of passing that Bill, it can be considered as a kind of 'intimidation' approach adopted in the larger bench.

Surprisingly, with empty oppositions, the Bill was unanimously passed by voice vote. One of the reasons behind accepting the Bill by the opposition party may be the use of the Right to Information Act as a shield against the sword of RTI activists. Numerous dangers and assaults (counting murder) go unreported by the media. Media reports of more than 300 cases of assaults on or badgering of natives and at any rate 51 killings and five suicides can be connected to data looked for under the Right to Information Act, 2005.

The absence of a real justification for this amendment, failure to address the real deficiencies in the RTI institutions, and the absence of any public participation in the process, all speak to a larger fear, that of a government which will do as it pleases, no matter the consequences for the populace. More than the merits of the amendments proposed, these things perhaps present the real threat of a Bill like the RTI Bill, not just to the Right to Information Act, 2005 but to the notion of a participatory democracy itself.

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Volume 5, No. 1 (April 2019 - September 2019) & Volume 5, No. 2 (October 2019 - March 2020) - Combined Issue
ISSN 2455–7846

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Climatic Adaptation and Sustainability of Rice in Bangladesh

Mohammed Ataur Rahman[1] and Sowmen Rahman[2]*
[1]Professor, College of Agricultural Sciences and Director, Centre for Global Environmental Culture, IUBAT—International University of Business Agriculture and Technology, Uttara, Dhaka
*Email: marahman@iubat.edu *Corresponding author*
[2] Department of Environmental Planning, University of Waikato, New Zealand
Email: soemenurp@gmail.com

Abstract

Rice is the most important grain crop of Bangladesh. There are thousands of varieties of rice were in Bangladesh. Over 5000 local rice varieties have become extinct in the country in the last few decades. To date, approximately 8,200 germplasm have been preserved by the BRRI genebank. From the available data of Digital Herbarium of Crop Plants only 135 varieties are in cultivation now. According to climatic adaptation in the tropical monsoon four Ecotypes or Landraces of rice are grown in Bangladesh. These are Aus, Aman, Boro and Jhumia which are grown in different climatic seasons of tropical monsoon. The characteristics of these landraces are studied in detail in this paper. Special emphasis was given on adaptability and sustainability; residue management and biomass recycling of rice.

Keywords: Monsoon seasons, Agroecological niches, Landraces, Sustainability, Biomass recycling

Introduction

Bangladesh is located between 20°34´ and 26°38´ North latitudes and 88°01´ and 92°41´ East longitudes. It is a part of the Ganges and Brahmaputra delta which lies to the so. The climate of Bangladesh is humid subtropical nature with warm humid summer and cool dry winter under the Indian Monsoon region having distinct four seasons. The Climatic Seasons are Pre-Wet Monsoon, Wet Monsoon, Post Wet Monsoon and Dry Monsoon (Shahid 2010). The Pre Wet Monsoon starts in March and prevails in the whole of May. During this season, the southwest maritime wind starts, the temperature rises up to 35°C, day and night temperature variation is very high often exceeds 20°C. Windy weather with increasing humidity, often with tropical cyclones called Nor'wester or Kal-Boishakhi. The Wet Monsoon starts in June and continued throughout September with high humidity, high temperature, and high rainfall. Floods often cause serious damage to lives, crops, and structures.

Day and night temperature difference is comparatively low, seldom exceeds 10°C. The Post-Wet Monsoon starts in October till the end of November with high daylight intensity and decreasing humidity. Often causes strong cyclones especially in the coastal region. During this period, water recedes from the floodplains like Baed, Kuri and edges of the Beels. The Dry Monsoon starts from December and prevails in February, dry weather with low temperature. The temperature often drops below 10°C usually with foggy nights and mornings with foothills of the eastern Himalayas; west to the Arakan and Lusai folding ranges and in the south, the Bay of Bengal. Hundreds of rivers and tributaries from the upper north, northwest and eastern zones travel towards the Bay. There are few hillocks in the central zone of Bhawal and Madhupur, Lalmai and some high flats in the Barendra region. Besides these, there are scattered patches of hills and hillocks which are mainly the extensions of the Himalayas and Lusai-Arakan ranges. The remaining areas are alluvial plains, flood plains, deep and shallow depressions or wetlands. Geologically, Bangladesh is a part of the Bengal Basin and the floor consists of quaternary sediments deposited by the GBM river system, and their numerous tributaries and distributaries. Over 92% of the annual runoff with huge sediments generated in the GBM catchment area flows through Bangladesh, which is only about 7% of the total catchment (Rahman and Rahman, 2015).

The climate of Bangladesh is humid subtropical nature with warm humid summer and cool dry winter under the Indian Monsoon region having distinct four seasons. The Climatic Seasons are Pre-Wet Monsoon, Wet Monsoon, Post Wet Monsoon and Dry Monsoon (Shahid 2010). The Pre Wet Monsoon starts in March and prevails in the whole of May. During this season, the southwest maritime wind starts, the temperature rises to 35°C, day and night temperature variation is very high often exceeds 20°C. Windy weather with increasing humidity, often with tropical cyclones called Nor'wester or Kal-Boishakhi. The Wet Monsoon starts in June and continued throughout September with high humidity, high temperature and high rainfall. Floods often cause serious damage to lives, crops and structures. Day and night temperature difference is comparatively low, seldom exceeds 10°C. The Post-Wet Monsoon starts in October till the end of November with high daylight intensity and decreasing humidity. Often causes strong cyclones especially in the coastal region. During this period, water recedes from the floodplains like Baed, Kuri and edges of the Beels. The Dry Monsoon starts from December and prevails in February, dry weather with low temperature. The temperature often drops below 10°C usually with foggy nights and mornings.

The weather condition varies with the locations. While the eastern and southern districts have more moisture availability, which in the western is comparatively less. Although the average rainfall in

Bangladesh is high, but its distribution over time and space is not uniform. The period from December to February is virtually dry having only 65.9 mm rainfall. Among the districts, Natore receives the lowest rainfall (1556 mm) while Sylhet the highest (3876 mm). The mean annual temperature is 24.82° C, with a maximum of 29.79 and a minimum of 14.79° C averaged from 1796 until 2015. The average solar radiation indicates that the radiation interception is only 36 - 38% of the sunshine hours from June to August owing to continuously overcast sky. Flood is a regular feature affecting rice production in Bangladesh. On average four percent of rice are annually damaged by flood (Paul and Rasid, 1993).

The average pH of Bangladesh soils could be taken on the acidic side of the pH scale, between 5.5 and 6.5. The Gangetic alluvium soils, particularly the calcareous one, have pH greater than 7.5, reaching at times up to 8.3. These contain free carbonates and bicarbonates. Soils in plateaus, raised lands and hills are usually acidic. Organic matter (OM) status of Bangladesh soil is one of the lowest in the world. About 3.7 million hectares of land contain' 1.75% organic matter; soils of the low-lying areas contain' 5.5% organic matter with the exception of peat soils which contains not less 20% organic matter; and rest of the soils contain medium to high amounts of organic matter (Banglapedia).

Variation of climatic factors in different seasons and undulated landscapes provided distinct wet, semidry and wet phases of soil with variable fertility. This wide spectrum of fertility status of the region, in turn, results in vegetative growth potentials in general and cropping patterns in agriculture pattern in particular, especially for rice, attributing to inherent diversity traits of the region. It is roughly estimated that during the past more than 30,000 rice cultivars were grown in the eastern and northeastern parts of India. The indigenous rice varieties cultivated by traditional farmers may contain a considerable genetic diversity that can serve as a source of germplasm for genetic improvements of cultivated varieties of rice. In general, diverse landraces traditionally cultivated by farmers around the centers of diversity and domestication of crops are considered as key natural resources important for maintaining the future food security in light of the changing climate (Pusadee et al. 2009 and Choudhury et al. 2013).

Rice is the most important grain crop in Bangladesh. There are thousands of varieties of rice were in Bangladesh. Over 5000 local rice varieties have become extinct in the country in the last few decades (Rahman, 2013). Nearly I 0,000 landraces are considered to exist in Bangladesh (Cai and Morishima 2000) and it is estimated that about 120,000 varieties of rice exist in the world (Khush 1997). To date, approximately 8,200 germplasm have been preserved by the BRRI genebank (Islam et al. 2018). These germplasms are not only the basis of providing food security but also essential for saving biodiversity. From the available data of Digital Herbarium of Crop Plants, only 135 varieties are

in cultivation now; this situation is very alarming both for food security and biodiversity. The ongoing rapid changes in agricultural practices that favor agronomically improved varieties have become a serious threat to the persistence of indigenous rice varieties. Thus, conservation and management strategies are urgently needed to prevent further loss of genetic diversity inherent to indigenous rice varieties in the region. A detailed understanding of the genetic structure and diversity is needed for the planning and implementation of effective conservation, management, and utilization of rice germplasm in the whole region (Choudhury et al. 2013).

Therefore, along with the genetic forced crop improvement, climatic adaptation and improvement of environmental factors through climatic manipulation and aggregate farming using multiple varieties of crops, pets and aquatics, etc. are utmost essential for food and nutrient security in this climate change situation. Considering these, the climatic adaptation of rice has been studied under Bangladesh's condition.

Methodology

This work has been started in 2010 with a self-funded initiative to collect information from different sources like research publications, government and public research institutions, offices, books and journals, periodicals and also from the news media. Physical investigations were made visiting most parts of the country meeting people of different ages and levels. Many changes are also shared from the author's experiences at different workplaces and compared them by revisiting. Since, there are marked changes of the landscape are found but not scientifically documented or studied, as it was less understood or overlooked in the past, so little data is available. However, this study has been done with care and given utmost importance to its scientific needs.

Ecotypes and Landraces of Rice in Bangladesh

According to climatic adaptation in the tropical monsoon four Ecotypes or Landraces of rice are grown in Bangladesh which is Aus, Aman, Boro and Jhumia.

Aus:

In BRRI genebank, there are 1,500 varieties of Aus rice are available. Growing period Pre-wet monsoon (March-April) to wet monsoon (July-August) Since Aus rice group has a shorter duration and capabilities to address biotic and abiotic physiologically stress conditions, so this particular group is being drawn attention to rice scientist for extensive research activities. There is very limited information on the above comparative study on the physicochemical properties of these selected HYV and local Aus cultivars. These cultivars are being grown in the country and may have some useful characteristics, which would be helpful for developing the improved new rice varieties (Hosen et al.

2016). It is interesting to note that seeds of Aus rice do not need any pre-germination wetting or soaking. Seeds are broadcast in a well-plowed dry field and they are happy to germinate and grow in the film moisture of the soil. They have a well-developed root-system penetrate deep into the soil. Heavy rainfall at early life is harmful to the plants, stagnancy hampers root aeration even plants get rotten. Besides this, heavy competition faces with other grasses and hamper the growth. Aus rice is tolerant to drought at the vegetative stage and high temperature at the reproductive stage.

He quoted from Khona as saying on Aus rice something like as:

"Drought in May followed by heavy rain,

Dry stalks grow green to yield better grain".

Generally, drying up of the growing shoots of the plant at its early vegetative stage due to the severe drought helps to break the apical dominance to regenerate new tillers profusely immediate after the monsoon rain. Though Aus rice prefers to grow better under upland conditions, the reproductive and maturity stage of the crop has to encounter the rainy season. Even in the lower topography or in the Charland farmers have to harvest their Aus crop in a knee to waist-deep water (Biswas 2017).

Aus allows mixed cropping, traditionally amaranth, musk melon and sesame used to grow in the Aus field. Although the yield of Aus rice is low 1.83 tons per hectare (BBS 2012) but the aggregate output is very high.

Aus is very important for maintaining the dry phase of the soil and its microflora.

Some examples of local Aus varieties are: Haitta, Kotoktara, Goria, Porangi, Kala Manik, Hasi Kalmi, Balam, Vaduri, Aguli, Begun bitchi, Rang mahal, Laxmijhota, Katar, Chiknal, Manikmendal, Baismugur, Dal Kaisha, Kali Bori, Garia, Panock , MarikMandu , Chiknal , Shoni , Ingra , Nayan Tara , LangraBeni, LalGalong, Bolium , Holat , Noroi, Kamini Sail,, Laxmilota, Mele, Saita ,GoriSaita ,Porangi , Goyal , Manikmoda , Saita, Paik juta, Kala manic, BenaFul , KoeJuri , Tepakain , Kautukmoni , Hasha , Korchamuri , Ajabbeti , Boilam , Bnamka , Parangi , Baturi , HaitaiSaeta ,MorySaita , Manikmendal RangMahal, Baismagur , LaxmiJhota , Sribalium , Pankhira (Siddique et al., 2016).

Aman:

Aman is also called Baoa in the Greater Mymensingh region. Cropping period for the Broadcast method: Pre-wet monsoon to late Post wet monsoon; for Transplanted: early Wet monsoon to Post wet monsoon. Usually, Aman is adapted to grow in the floodplains and seasonal wetlands like Baed, Kuri and edges of the Haors and Beels. Flood free upland flats are also used by terracing to keep required water for their growth and development of Aman rice. Vegetative growth needs a longer photoperiod

but flowers in short days. As Aman plants are water-loving they have special adaptation with the environment. Their root system is comparatively not well-developed as they do not need to search for water. Usually with the rise of water, quick elongation of internodes and develop adventitious roots in the nodes for respiration. Some of the varieties of deepwater rice are highly adapted even growing in deep monsoon water especially in the Beels and Haors. There are more than 2,000 deepwater rice cultivars in Bangladesh and almost all the deepwater cultivars are strongly photoperiod sensitive (Catling 1992). Photosensitivity fixes the flowering time at a favourable point in the flooding period, enables the plant to escape the adverse effect, of low temperature in the reproductive phase, and usually ensures crop maturity as soon as floods have receded. Deepwater floating rice has three special adaptations: (i) ability to elongate with the rise of water levels; (ii) develop nodal tillers and roots from the upper nodes in the water; and (iii) the upward bending of the terminal part of the plant called 'kneeing' that keeps the reproductive parts above the water as the flood subsides (Yamuna and Ashwini 2016). Deepwater rice grows under rainfed dryland conditions for 2-4 months before the onset of the flood when the plant produces basal tillers. With inundation, the plant becomes an emergent macrophyte and grows in an aquatic environment for the remaining 3-5 months of its life. Nodal roots absorb nutrients from floodwater. Stem elongation is stimulated by partial submergence; it results from cell division and elongation of cells in the intercalary meristem due to an interaction of the plant hormones, under the control of two complementary genes. There is an increase in the number of elongated internodes with an increase in water depths. The majority of deepwater rice cultivars in Bangladesh is of strong elongators. The stem may reach 5-6 m in very deepwater situations (Banglapedia). Unlike Aus, from the initial period viz. germination, seedling and growing stage till flowering it needs huge water. However, during the ripening season excess water delays the development of grain and hampers ripening.

A few common Aman rice are Nazir Shail, Loti Shail, Raja Shail, Balam, Binni, Kataribhog, Digha, Kartik Shail, Birui, Kali Jira, Nuinnya, Chinigura, Beti Balam, Horkhuch, Britichikon, Tilok Kajol, Chengai Dhan, Sal Kele, Bet, Bilbadai, Modhusail, Lalmota, Sadamota, Rajushail, Patnai, Nonashail, Jhingashail, Indrashail, Kataribhog, Tulsimala and Kalijira.etc. Varieties like Jotabalam, Ashfall, ghunshi and Benapol are salinity tolerant.

According to land-water availability and climatic seasons, Aman rice can be grouped into three which are Sali, Asra and Bao (Ngachan et al. 2011).

Sali usually grows in flood-free terraced land and temporarily flooded plains like Baid and Bandha; traditionally transplanted during the Wet Monsoon July to August. The essential rainwater is

usually managed by Ails or raised boundaries through opening and closing channels or Nala. With the recession of rainfall, grams and pulses are often sown as mixed crops in most of the rice fields. Black gram (Mash Kolai) and Mung bean (Mug Kolai) are in the flood free and raised terraced land and Lathyrus (Kheshari) in the temporary floodplains. The rice used to harvest in late Post Wet Monsoon November and December.

Asra is shallow water rice usually grows in 1-2 M deep water, traditional sowing season Pre-wet monsoon March-April and harvesting in Post wet monsoon November-December. For transplanted one: early Wet monsoon to Post wet monsoon.

Bao is deep water of floating rice grows in 2-5 M deepwater traditional sowing season Pre-wet monsoon March-April and harvesting in Post wet monsoon November-December. For transplanted one: early Wet monsoon to Post wet monsoon.

Boro:

Cropping period starts in Dry monsoon and harvest in Pre-wet monsoon. The boro rice is commonly known as winter rice. The term boro is Bengali originated from the Sanskrit word "Borob". Boro has traditionally been cultivated in the river basins, deltas, chaurs or saucer-shaped depressions, where water accumulates during the monsoons but cannot be drained, thus providing ideal settings for boro rice cultivation during the winter season. Rainfed swampy ecologies occur in depressed land conditions where the soil remains either submerged or saturated for a substantial period of the year. These areas are generally saucer-shaped and have various levels of soil saturation or submergence - the central low-lying zone generally remaining saturated or submerged throughout the year while the periphery shows gradual moisture depletion after the monsoon finishes, making it ready for rice transplanting in December or January. Being very low-lying, swampy ecologies are chronically flood-prone during the monsoon, rendering them unusable for crop cultivation from June to November (Pathak et al. 1999).

Although boro rice cultivation has been an old practice in deepwater areas, it is only recently that it has emerged as a breakthrough in enhancing rice productivity, not only in traditional but also in non-traditional boro rice areas with assured irrigation and modern inputs. The credit primarily goes to the farmers' initiatives in adopting its cultivation in a big way. With the increased availability of irrigation facilities, boro rice technology has also moved to non-traditional flood-free irrigated areas (Singh and Singh 2000). Traditional Boro rice is adapted with low temperature and low humidity. Boro rice are photoperiod insensitive and are adapted to mild winter conditions (Zaman, 1980) and cold adaptive (Choudhury et al 2013). They are similar to transplanted Aman both in their method of cultivation and crop habit. The boro crop is sown in October -November, transplanted around

December-January and harvested in the spring. Traditionally, they have only been grown on land which retains sufficient water throughout the rabi season to support crop growth. However, with improved irrigation, these high yielding varieties are increasingly being adopted by Bangladeshi farmers (Parsons et al. 1999).

A few examples of local Boro rice are Tepi boro, Jagli Boro, Kili Boro, Nayon moni, Tere bale, Bere ratna, Ashan boro, Kajol lata, Koijore, Kali boro, Bapoy, Latai balam, Choite boro, and Sylhety boro etc.

Jhumia or Jhum rice is also called Hill Rice:

Cropping period: Sowing in Pre-wet monsoon April and May and harvested in Post wet monsoon September to November. They are grown on sloppy hills mixed with other crops after slash and burn method also known as shifting cultivation. There are thousands of Jhumia landraces in Northeast India. More than 300 local Jhum rice landraces have been collected from various locations in the Chittagong Hill Tracts and conserved in Bangladesh Rice Research Institute (BRRI) Genebank (Source: BRRI Genebank accession book). Jhumia rice is also cultivated on the hills of Moulvibazar and Sylhet districts but very scant information is available on genetic divergence there. This collection is an invaluable genetic resource that can be used for varietal improvement (Islam et al 2017). Both red and white sticky (glutinous) and non-sticky (nonglutinous) rice are grown in Bangladesh. Jhumia rice is adapted with high humidity and they cannot tolerate standing water at any phases of their life. Jhumia shows adaptations to a wide range of environmental conditions including low levels of soil moisture in areas at high altitudes reaching over 3000 m above sea level (Choudhury et al 2013). They are mostly grown on the uplands covered extensively by Ultisols characterized by acidic reaction and the dominance of variable charge clays (Kyuma 2009). Jhumia rice usually cultivated with 30-40 other alley crops viz. maize, sesame, chilli, basils, arums, ginger, gourds, cucumbers, pumpkin, melons, string bean, Marpha, cotton and banana etc. which are traditionally grown by the local people. These multiple cropping systems provide the opportunity for livelihoods of other animals like wild fowls, pigs, wild boar, Monitor lizards, deer, wild dogs, porcupines, snakes, monkeys, jackals, hares, frogs and mongoose, etc.

Some examples of locally cultivated Jhumia rice are: Kamarang, Koborok, Helong, Guri chinel, Bandar Bini, Horba Bini, Horin binni, Gellong, Lonka Pora, Uttose, Laxmi binni, Dop Chodai, Guri, Tarkee, Angu, Marry, Pattiya, Modhumaloti, Mon ange, Ame dhan, Badheia, Longur dhan, Biralbinni, Binni, Sonamukhi, Meli and Jhummalati etc.

Adaptability and Sustainability of Rice

Rice has a wide adaptation ability under different agroecological niches of Bangladesh. It can be cultivated on the slope of the hill, plain lands, floodplains, semi-dry to very deep flooded areas. Widely adapted with different climatic seasons; can be cultivated throughout the year. Rice is the best-adapted cereal crop in the lowland soil in the wet season. No other crops have this ability to cope with the situation. When the vast areas of our country go under floodwater for a considerable time in the wet season, or when intermittent flash flood affects the majority of the lowlands, or when tide water rises and falls twice a day, rice is the only crop option to be suited in those conditions. Thus rice enables one to bring these vast areas under cultivation in unfavorable conditions (Nasim et al. 2017).

An extremely high density of the human population in Monsoon Asia has been supported by paddy rice cultivation developed exceptionally extensive lowlands that have resulted from erosions of uplifting Himalayas and erupting volcanoes under heavy monsoon rains. A native grass, Oryza Sativa, has many outstanding merits when cultivated in submerged soil, thus making paddy rice/soil system highly productive and, at the same time, highly sustainable. High productivity and high sustainability are the outstanding merits of rice cultivation, while upland cultivation in Monsoon Asia for dry footed crops has been handicapped by low soil fertility and high susceptibility to soil erosion. In the future, rice would remain the most important crop in Monsoon Asia and further intensification of rice cultivation should be attained. To nourish the region's increasing population, upland cultivation must also be intensified with adequate measures for soil amendment and conservation (Kyuma, 2009).

Traditionally in Bangladesh, Jhum or shifting cultivators had been paying careful attention to soil resilience by practicing short cultivation following long fallow system with the minimum of disturbance to the surface soil to avoid soil erosion and to help facilitate forest regeneration thus Jhum cultivation as a means of slope land utilization has been quite sustainable.

According to variation of climatic seasons and topography there evolved different kinds of rice with many characters and specialties. Aromatic, non-aromatic, glutinous and non-glutinous, coarse and fine grain, long medium and short-grain rice with varied colors: brown, white, red and black, etc.

Perhaps rice is the most sustainable food crop in the world in providing energy and nutrition, has versatile food preparations, preservation and regeneration opportunities. Comparing to vegetable crops, other grain crops, tuber and root crops and even fruit crops rice is cheaper and handy.

Rice is considered to be an auspicious symbol of life and fertility. Starch is the most important source of carbohydrates in the human diet and accounts for more than 50% of our carbohydrate intake. It occurs in plants in the form of granules, and these are particularly abundant in cereal grains and

tubers, where they serve as a storage form of carbohydrates. We often think of potatoes as "starchy" food, yet other plants contain a much greater percentage of starch (potatoes 15%, wheat 55%, corn 65%, and rice 75%). Commercial starch is a white powder (LibreTexts 2019). Although potatoes are cheaper than rice it is one-fifth efficient to rice, therefore, costlier than rice.

Boiled and cooked rice, viz. Bhat, Polao, Biriani, Khichuri, fried and puffed rice: Chira, Muri, Khoi and Moa, fermented Bini Bhat, wine, beer and vinegar, rice bran oil, soup and many kinds of cakes and preparations with fruits, sugar, milk, chili and spices e.g. Pitah, Payesh, Kheer, Semai, banana leaf Puli, and bamboo Pitahs, different seasonal Pitah preparations like Taler (Palmyra palm) Pitah in Vadra, Vapa Pitah in Poush, Kolar (Banana) Pitah in Magh, Katal (Jackfruit) Pitah in Jaista and Ashar and coconut pitah throughout the year. Cooked rice is usually consumed with diverse recipes prepared with meat, fishes, prawns and vegetables and fruits as curries, Vorta and salads etc.

Residue Management and Biomass Recycling

Residue management practices affect soil physical properties such as soil moisture content, temperature, aggregate formation, bulk density, soil porosity and hydraulic conductivity. Increasing amounts of rice residues on the soil surface reduce evaporation rates and increased the duration of first-stage drying. Thus, residue-covered soils tend to have greater soil moisture content than bare soil except after extended drought (Mandal, et al. 2004). The straws are very good fodder for cattle used in both green and dry conditions. Straws contain cellulose lignin and many minerals which decompose in the field or recycled via cattle through enzymatic and microbial process enriching food chain adding value with protein, fat and minerals. The cellulose is the carbohydrate like starch with similar basic unit glucose. Therefore both rice and straw are contributing to energy conversion and nutrient supply chain and in the biogeochemical cycle more efficiently than any other crop.

Usually, the yield of the vegetable crops is high and consumed whole plant parts; thus all nutrients are ingested by humans, very little portions are recycled through the involvement of other animals. As a result, short-cycled recycling of the human faeces or excreta is not easy especially from the quickly growing urban areas. Therefore, the nutrients are not getting back to their sources of origin and the soil nutrition status is declining sharply mainly from the vegetable fields. Practically in the urban and peri-urban areas, the huge faeces remain unutilized years together in the septic tanks; the black water overflows to the rivers or wet-bodies through the sewerage systems. Unfortunately, most of the wet bodies are deadly polluted with the chemicals, oils and other pollutants discharged from the industries, transports, hospitals and tanneries, etc. As a result, the productivity of fishes and other aquatics is also very poor from those wet bodies. On the other hand, urban green garbage is rarely

recycled rather dumps for landfill. Other than the faeces, according to Waste Concern (2006), average per capita urban waste generation rate is estimated as 0.41 kg/capita/day of which food and vegetable comprises 67.65% i.e. about 0.28 kg/capita/day and for present urban 40% of the total population of the country producing 20,160 tons green waste every day by the urban people of which a very negligible quantity is recycled. Thus the soil fertility status of the country has been declining very sharply and the farmers are becoming increasingly dependent on chemical fertilizers. Therefore rice-based home-centered farming system for short cycled biomass recycling is of utmost essential. The diversified landraces of rice can supply the necessary energy and nutrients to humans and other animals associated with the cropping circle in this region.

Conclusion

Since rice is the most adaptive crop grown in versatile conditions like hill slopes, flatlands, floodplains, wetlands in varied weather conditions especially of monsoon regions, tropical and equatorial zones of the world providing food and nutrients to almost half of the population of the earth it should be remembered that if there is no rice to eat, the whole civilization will collapse. It must be investigated whether the flourishing Indus Valley civilization collapsed as a result of adverse climate change. Climate is of crucial importance in rice production. A change in the climate regime can cause to end a civilization. Therefore, extensive climatic research in the country with an emphasis on agro-climatology (Choudhury 2011) is urgently needed. To save the biodiversity and for regaining the soil health by enriching the soil micro and macroflora and nutrient recycling the diverse landraces of rice are essential. Large variations of its color, smell, grain-size, texture and chemical composition, etc. indicate the richness of its sustainability.

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Volume 5, No. 1 (April 2019 - September 2019) & Volume 5, No. 2 (October 2019 - March 2020) - Combined Issue
ISSN 2455–7846

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