

## INFLUENCE OF MECHANISATION ON EMPOWERING WOMEN WORKERS IN COIR UNITS OF KERALA: AN EMPIRICAL STUDY

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### Abstract

The concept of women empowerment is very hard to state. Economic progress of an individual won't call him or her as empowered as there are many factors that are associated the empowerment. Kerala is a state where coir units significantly contributed to the socio-economic development of the state. In coir units, as majority of the workers are female, every positive or negative step will affect their work life and social life. The aim of this article is to find out the effect of mechanization in empowerment of women workers in Kerala. This study was conducted in coir capital of Kerala, Alappuzha with a sample of 100 respondents. The study found that progress in mechanisation helped the women workers to achieve not only the economic empowerment but also empowered them as a worker and helped them in achieving a better social life. The coir unit owners also stated that through mechanization not only the cost of production was reduced but it also helped in increasing the work days and in attaining organisational efficiency.

**Keywords:-** Empowerment, Mechanization, Organisational Efficiency, Coir Unit, Social Life

The concept of women empowerment has drastically changed over the past 20 years, moving from a welfare approach to an egalitarian approach. Women empowerment is a serious concern for every country. The socio-economic progress of a nation will only be completed when the entire

population achieves human development without gender discrimination. The recent data indicates that women around the world, especially in India, lag behind men in practically every area of life.

It is impossible for humans to progress fully without the empowerment of women. A country's HDI will be lower the more gender inequality there is in that

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country. Every person needs to actively engage in an activity that can raise their standard of living and help them achieve a better economic position in order to have more influence over their life circumstances. Due to low productivity in the coir sector, various study group appointed by government and other agencies highly recommended the adoption of modern technology. However, Kerala is still yet to achieve a proper implementation of technology in coir industry. The low degree of mechanization achieved in the coir sector of Kerala and the delay in the practical adoption of scientific development has resulted in production of lower quality, lower productivity and diversification.

### Statement of the Problem

The coir industry in Kerala has historically provided employment to a large number of women, especially in rural areas of Kerala. In order to study how mechanization helped in women empowerment in coir industry, the economic, personnel and social factors are to be considered. Despite the growing relevance of this issue, there exists a lack of empirical research assessing how mechanisation has actually influenced the working conditions, decision-making power, skill enhancement, and overall empowerment of women in coir units across Kerala. Understanding this dynamic is critical not only for policy formulation but also for ensuring inclusive growth within the sector. It is therefore the researcher has titled this research paper as "Influence of mechanisation on empowering women workers in coir units of Kerala" which tries to find how

far the mechanization in coir industry and women empowerment are related.

### Significance of the Study

The study helps to evaluate whether industrial modernisation is genuinely uplifting rural women. This research is undertaken by the researcher to study how the mechanization has impact in the empowerment of women workers employed in coir industry of Kerala based on various dimensions that support the planners and stakeholders in formulation of effective policies.

### Scope of the Study

The scope of this study focuses on assessing the **impact of mechanization on the overall empowerment of women workers employed in coir production units-** economic, social, and personnel, particularly those utilizing mechanized processes.

### Objectives

- To understand the socio-economic profile of women workers in mechanized coir units in Alappuzha.
- To assess the effect of mechanization in empowerment of women workers in Alappuzha.

### Methodology

The study is mainly based on primary data, collected from the coir capital of Kerala; 'Alappuzha'. Primary data were collected through scheduled-questionnaire. The study is descriptive in nature. Multi stage sampling method is the technique adopted by researcher to collect the data. The researcher has selected

Alappuzha district for the study through Judgment sampling, as Alappuzha is the base centre of coir in Kerala and has the greatest number of mechanized coir units in Kerala. For convenience the researcher has divided Alappuzha region based on its taluks. There are six taluks in Alappuzha districts and the researcher selected 2 taluks based on lottery method. The taluks selected are Cherthala and Karthikapally. From each Taluk the researcher has selected five coir units based on the extent of mechanization adopted by these units. From each coir unit a sample of 10 each were selected through systematic sampling method. Thus a total sample of 100 women workers in mechanised coir sector was selected for the study.

**Tools of Analysis:** Percentage, Mean comparison, ANOVA, Regression

### Variables used in the Study

The variables used for the study related with empowerment of women coir workers in mechanised units with reference to the following factors:

- Personnel empowerment factors,
- Social empowerment factors,
- Economic empowerment factors.

### Hypotheses

1. H01 : Dependence between Personnel Empowerment of women workers and Usefulness of mechanization in coir units.
2. H02 : Dependence of Personnel Empowerment of women workers in their economic Empowerment.
3. H03 : Social empowerment based on Usefulness of mechanization,

Experience in mechanized units and Monthly income of women workers.

### Review of Literature

Thomas and Mathew (2020) observed that cooperative societies in Kerala have been more successful in integrating women into mechanised operations than private units, mainly due to their social orientation and participatory structure. This suggests that institutional support and workplace culture play vital roles in determining empowerment outcomes. Training and capacity-building are critical for ensuring that women benefit from mechanisation. According to a report by the National Skill Development Corporation (2019), targeted interventions and gender-sensitive training programs in the coir sector are essential to promote inclusive growth. (IMF, 2018) states that Women play great role in the sustainable development of a nation. Empowerment of women has positive contribution towards productivity, income equality and economic diversification. Employment of more women means more economic growth. (Khari, 2009) tried to explore how CRTC, a relatively small isolated rural NGO in the foothills of the Himalayas, has been successful in the empowerment of rural women to transform economic and social development when empowered to fully participate in the decisions that affect their lives through leadership training, coaching, consulting and the provision of enabling tools for women. (Gouri, 2005) mentioned that mechanization in coir units helped in creating more employment in the rural

areas and the mechanization has helped in generating better earnings to women workers and helped them in raising their standard of living. While there is broad agreement on the transformative potential of mechanisation, empirical data on its actual impact on women’s empowerment, especially from a multi-dimensional perspective is limited.

Results and Discussion

Analysing the table 2, relating to Economic Empowerment, a high mean score was attached to the statement regarding Elimination of poverty by offering better work avenues with a mean score of 4.69 with a Standard Deviation of 1.08125 means that almost all of the respondents highly agreed with the statement. This was followed by Freedom to choose the work along with the highest Standard Deviation of 1.66128. Even though the mean score was fine, the high

SD signifies that there are many respondents who has a clear sense of disapproval to this statement which makes the totality of this statement volatile. Enabled to become economically self independent, Improved wages, Improved access of micro credit, Equal remuneration with no gender disparity comes aftermath with mean scores of 4.41, 4.32, 4.11, 3.96 respectively. Enhancement of decision making autonomy and support to training and employment programmed for women with a mean score of 3.77 and 3.56 respectively. From this, we can conclude that despite eliminating the poverty scenario many of them are still lacking a better financial decision making autonomy.

Table 3 describes the women workers perspective of social empowerment themselves with respect of mechanization in coir units. The

Table 1  
Socio-Demographic Profile of Respondents

Variables	Category	No. of Respondents	%
Age (in years)	Up to 40	23	23
	41-60	67	67
	Above 60	10	10
Education qualification	Up to SSLC	55	55
	Up to Pre-degree	41	41
	Up to Degree	4	4
Monthly Income	Less than 10000	7	7
	10001-25000	67	67
	Above 25000	26	26

Source: Primary data

**Table 2**  
**Descriptive Statistics on Economic Empowerment**

Statements	Mean	Std. Deviation
Elimination of poverty by offering better work avenues	4.69	1.08125
Freedom to choose the work	4.54	1.66128
Enabled to become economically self independent	4.41	0.94028
Improved wages	4.32	0.59394
Improved access of micro credit	4.11	1.40535
Equal remuneration with no gender disparity	3.96	1.12459
Enhancement of decision making autonomy	3.77	1.19073
Support to training and employment programmed for women	3.56	1.50247

*Source: Primary data*

**Table 3**  
**Descriptive Statistics on Social Empowerment**

Statements	Mean	Std. Deviation
Improved self -respect	4.4400	0.94773
Greater autonomy to women workers	4.3700	1.09655
Better group cohesiveness	4.3600	1.20202
Progress in social situation of women workers at a faster pace	4.3200	1.08134
Reduced gender discrimination	4.2700	1.22148
Job insecurity feeling reduced	4.0500	1.38078
Enabled women to organize themselves to be self- reliance	3.8100	1.07021
Empowered Kerala's Cooperative sector	3.4400	0.97623

*Source: Primary data*

women workers responded mostly that mechanization helped them in improving their self –respect, with a mean score of 4.44 and the least SD of 0.94773. This implies that mechanization has helped them in improving their self –respect in society. It was followed by Greater autonomy to women workers with a

mean score of 4.37 and SD of 1.09655. It was followed by Better group cohesiveness, Social situation of women workers seem to have progressed at a faster pace. Reduced gender discrimination, Feeling of job insecurity reduced, enabled women to organize themselves to be self- reliant showed a

mean of 4.36, 4.32, 4.27, 4.05, 3.81 and a SD of 1.20202, 1.08134, 1.22148, 1.38078, 1.07021. The least influencing statement was that it Empowered Kerala's Cooperative sector with a mean score of 3.44 and SD of .97623. It can be inferred that Improved self –respect, Greater autonomy to women workers, Better group cohesiveness, Progress in social situation of women workers at a faster pace showed a higher influence with higher mean scores. Self- reliance of women workers and Empowerment of Kerala's Cooperative sector were found least among them.

The analysis from table 4 throws light into the various statements used to test the Personnel Empowerment of women workers employed in coir units. It is evident that majority of the women workers opined that mechanization helped in enhancing production and marketing efficiency and it also helped in reducing the work load of women workers. When it came to creation of

Entrepreneurial skills among women workers, the opinion became less strong.

**Testing of Hypothesis-1- Dependence between Personnel Empowerment of women workers and usefulness of mechanization in coir units**

H1 - There is a significant difference between Personnel Empowerment of women workers and Usefulness of Mechanization in coir units.

ANOVA analysis (table 5) states that usefulness of mechanization have a significant influence in Personnel Empowerment of women workers. The p-value of Personnel Empowerment is 0.001 which is less than 0.05. Therefore the null hypothesis is rejected and alternative hypothesis is accepted. That is there is a significant difference in the Personnel Empowerment of women workers in respect of usefulness through mechanization.

**Table 4**  
**Descriptive Statistics on Personnel Empowerment**

Statements	Mean	Std. Deviation
Enhanced production and marketing efficiency	4.6200	.92965
Reduced work load	4.4900	1.06832
Better working conditions	4.4800	.97938
Reduced stress	4.4700	.92611
Confidence among women workers increased	4.1200	.49808
Provides greater access to knowledge and resources	4.0900	.51434
Opportunities for training	4.0700	1.39447
Helped in creating Entrepreneurial skills	2.7700	1.44148

*Source: Primary data*

Table 5  
ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.410	3	.470	5.611	.001
Within Groups	8.039	96	.084		
Total	9.449	99			

Source: Primary data

Testing of Hypothesis 2 - Dependence of Personnel Empowerment of women workers in their economic Empowerment

H1: : Personnel Empowerment depends on economic Empowerment of respondents.

Table 6 states the coefficient of correlation between the variables personnel empowerment and economic

empowerment. The coefficient of correlation as 0.848 and R<sup>2</sup>as 0.720 indicates that there is a strong correlation between these two variables and better R<sup>2</sup> value indicates that 72 per cent of the change in economic empowerment of women workers in coir units is being influenced by personnel empowerment of women workers.

The total regression sum of squares(22.419) and residual sum of

Table 6  
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.848 <sup>a</sup>	.720	.717	.29833

Source: Primary data

Table 7  
ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	22.419	1	22.419	251.897	.000
Residual	8.722	98	.089		
Total	31.141	99			

Source: Primary data

square(8.722) is 31.141. The P value associated with F value (251.897) is small (.000). The significance value is less than the criterion value of 0.05 along with a better  $R^2$  value of .720, the dependence of Economic empowerment in the Personnel empowerment of women workers is significant.

### Testing of Hypothesis-3- Social Empowerment based on Usefulness of Mechanization, Experience in Mechanized Units and Monthly Income of Women Workers

H1- There is a significant difference between Social empowerment of women workers and Usefulness of Mechanization in coir units.

H1- There is a significant difference between Social empowerment of women workers and women workers experience in mechanized units.

H1- There is a significant difference between Social empowerment of women workers and Monthly income of women workers.

Three-way ANOVA conducted using "Social empowerment" as the dependent variable and experience in mechanized units as the independent variable. It is noted that, with p-value of 0.957 which is greater than 0.05 statistically we fail to reject null hypothesis i.e.; H01. Therefore, there is no significant difference in Social empowerment of women workers in mechanized units on the basis of Experience in mechanized units. Furthermore, keeping Monthly Income as the independent factor showed p-value of 0.061 which is again more than 0.05, statistically we fail to reject the null

hypothesis H02. Therefore, there is no significant difference in Economic empowerment of women workers in mechanized units on the basis of Monthly Income. Finally testing the hypothesis on the basis of keeping "Usefulness of Mechanization" as the Independent factor showed a significance value of 0.043 which is less than 0.05 statistically, we reject the null hypothesis H03 and accept the alternative hypothesis. There is a significant difference in Economic empowerment of women workers in mechanized units on the Usefulness of Mechanization.

### Findings of the Study

Mechanisation in Kerala's coir units has had a **largely positive impact** on women workers, especially in terms of **economic and personnel empowerment**. The main findings of the study are summarised below;

#### Economic empowerment

- Mechanization has a significant positive influence on economic empowerment among women workers in coir units. Women who view mechanization as useful reported higher levels of economic empowerment, including increased financial independence and workplace autonomy.
- The usefulness of mechanization is a key determinant of economic empowerment in women workers, with a significant positive influence on financial independence and work autonomy.
- Mechanization helped **reduce physical workload**, enabling



Table 8  
Three-Way ANOVA (Test of between subject effects)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Experience in mechanised units	.008	2	.004	.044	.957
Monthly Income	.497	2	.248	2.913	.061
Usefulness of Mechanization	.731	3	.244	.2859	.043
Error	6.226	73	.085		
Corrected Total	8.422	99			

Source: Primary data

women workers to take on more responsibilities and gain greater **autonomy** in their roles, thereby contributing to **increased economic empowerment**.

- By improving **production efficiency** and **market access**, mechanization indirectly boosts **economic empowerment** by allowing women workers to earn higher wages and expand their economic opportunities.

Social empowerment

- Mechanization has significantly improved key aspects of social empowerment, such as self-respect, autonomy, and social status.
- There is a strong interrelation between personnel and social empowerment, though self-reliance and institutional gains remain areas needing improvement.
- Experience alone does not lead to better social empowerment, underscoring the need for intentional empowerment strategies beyond just technology adoption.

Personnel empowerment

- Perceived usefulness of mechanization is a key driver of personnel empowerment than mere experience or tenure.
- Personnel empowerment is deeply interconnected with both economic and social empowerment, playing a foundational role in overall development.
- Interventions aimed at enhancing personnel empowerment such as training, confidence-building, and workplace participation can lead to substantial gains across all empowerment dimensions.

Suggestions

The following recommendations are made to enhance influence of mechanization on overall empowerment of women workers in coir units

- Provide regular training programs on mechanized operations, quality control, and maintenance to increase women workers technical confidence and competence. Offer life skills

training, including leadership, negotiation, and communication, to build personnel and social empowerment.

- Ensure financial literacy programs are in place to help women manage earnings and make informed financial decisions and introduce **performance-based incentives** to reward efficiency and innovation.
- Support the formation of **women-led cooperatives or self-help groups**, encouraging shared decision-making and economic collaboration. Provide platforms for **recognition of women's contributions** in the coir industry to enhance self-respect and social status.
- Conduct awareness programs to **highlight the benefits of mechanization**, especially for women, to improve the perception of its usefulness and drive greater adoption. Establish systems to **regularly assess the impact** of mechanization on women's empowerment across personal, social, and economic dimensions. Use feedback from women workers to **refine tools, processes, and policies** continuously.

## Conclusion

The coir industry was chosen for study because of its social and economic importance to the state of Kerala. The industry employs vast numbers of disempowered social sections, mostly of the lower castes and outcastes, an overwhelming majority of them are women. In the prevailing scenario of the industry, the present research is a humble attempt to throw light on certain specific areas of the working of the mechanized coir units located in rural areas of Alappuzha district of Kerala. The finding of the study concludes that the mechanization in coir units has helped the women workers in achieving a better life than what they previously had. It is the mechanization that helps the coir units in expanding their production units which enabled the workers to have a better monthly income. The progress of every economy largely depends on how far the gender balance is achieved. The findings of the study also reveals that the adaptation of mechanization has helped the women workers in improving both their social life and economic status. They opined that mechanization help in reducing their work load and it also helped in minimizing the gender imbalances.

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