Micro Insurance and Fisherwomen in Coastal Karnataka
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Abstract

Worldwide fishing and fish farming activities provided livelihood to an estimated 41 million people in 2004; working either on a part-time or full-time basis on post harvest processing, marketing; distribution etc. and a high proportion of these workers are women (Willmann& Kelleher 2010). The fisheries also support subsistence activities and provide 'employment of last resort' and thereby reduce vulnerabilities of fisheries communities, which are often characterised as the poorest in society (Satia&Jallow 2010). The contribution of fisheries to the national income is estimated at Rs.35,650crores at current prices, which constitutes 1.1 per cent of total Gross Domestic Product (GDP) and 5.34 per cent of the Agricultural GDP (GOI 2008). The contribution of fisheries sector to Gross State Domestic Product (GSDP) at current prices during 1993-94 which was Rs.16,316 lakh, has increased to Rs.1,39,511 lakh in 2008-89 (GOK 2009). In fisheries, post-harvest sectoris one of the prominent sectors which indirectly provide gainful employment opportunities to a vast section of the society. In the post-harvest sector marketing of fish is one of the major activities whichis dominated fisherwomen.In fishing community Fisherwomen play a dual role of earning the livelihood and looking after the family. Over the years on account of mechanization and globalization in the fisheries sector her life was made too difficult to earn her daily bread and butter. On account of the nature of the occupation and poor infrastructural facilities in marketing places fisherwomen are exposed to different forms of health related problems. At this background, this paper examines the socio-economic status of fisherwomen, their health status, amount spent on medical treatment and suggests that micro health insurance can be a better solution to protect their lives from the health related risks. Thisstudy is based on the primary data collected from the fish retailers of two districts namely Dakshina Kannada and Udupi districts of coastal Karnataka.

Key words: Fisherwomen Micro Insurance, Post-harvest sector, Socio-economic status, Health problems

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1. Introductin:

The Karnataka coast has 156 marine fishing villages, constituting 30,176 families, the highest number being in the district of Uttara Kannada in the north. A recent census by CMFRI (CMFRI, 2010) puts the total number of marine fishers in the state at 167429. Of these, active fishermen numbered 40756, constituting 24% of the total. About 86% were full-time fishers and about 14% percent of the fishers were involved in ancillary activities like marketing, making/repairing nets, processing, curing, peeling, and labour. Women were involved in marketing, repairing/mending nets and peeling. Nearly 43 % of the families involved in fishing and allied activities owned neither craft nor nets. There were 6800 craft owned by fisher folk, of which 1,045 were mechanized, 1211 motorized and 4,544 non-motorized. (CMFRI, 2010).

In Karnataka, fisheries contribute 0.7% of the gross GDP and 3.18% of the net GDP to the state's economy at current prices. The gross GDP from fisheries sector increased from Rs.3702 lakhs

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in 1980-81 to Rs. 6666 lakhs in 1996-97 at 1980-81 prices, and at current prices it increased from Rs. 3702 to Rs.39575 lakhs. Fisher folk have always been very poor and amongst the most marginalized communities, often exploited by middlemen and merchants. Middlemen have control over credit and fish marketing, which drains away the surplus generated and often make them indebted. Most of the fisher people are not financially included and have little or no access to credit and insurance facilities. Financial inclusion can make a difference in the life of coastal small scale fisher folk

Role of women in fish marketing

Women play a significant role in the development of fisheries sector in addition to their role of sole household managers in most of the fisher families. The occupational pattern of women has undergone a structural change with the shift from net mending to post harvest activities like grading, sorting, peeling, curing, drying, vending etc. Their contribution penetrates every aspect of post – harvest handling, preservation, processing and marketing of seafood products and provide an integral link between producers and consumers.

Prior to mechanization of fishery sector, fisherwomen in coastal Karnataka used to get adequate quantity of fish for drying and sale in fresh form. She used to carry the dry fish to villages for barter, through which she used to meet her requirement of food grains. During that period she was getting fish in auction market. Since sufficient quantity of fish were available for fish oil and fish meal, family members of fishing household, also were employed in the activities related thereto. The role of middlemen/wholesalers was very limited. She was the direct agent between fish catchers and consumers. Over the years, with changing fishing technology the post-harvest fisheries scenario has changed to export oriented processing and marketing (freezing and canning etc) from traditional curing and drying apart from fresh fish trade in local and distant markets. This process has brought about several changes in the fresh fish trade in local and distant markets. In the fish market we can see the bulk buyers who buy in large quantity and transport fish to interior parts of Karnataka and other country and wholesale commission agents who buy exportable varieties of fish for exporting. Fisherwomen and men who sell the fish to consumers are the vital link between the wholesalers and consumers. Now the role of fisherwomen in auction market has come down due to the appearance of wholesalers.

2. Statement of the problem

In fisheries post-harvest sector fisherwomen play a significant role in marketing of fish. Though we have received a independence half a decade ago, Fisherwomen in the country are not independent in several respects. Still they are selling the fish in a unhygienic place where they do not have basic facilities like toilet, clean drinking water, place to eat, place to take rest, place change their dress. They are forced to sit by folding their legs for more than 10 hours per day. On account of all these reasons they are exposed to several kinds health related risks. When we look their age, most of them are middle aged. But still they have to work in order to earn their livelihood of their family. Though they too contribute to the wellbeing of the nation they are not provided with social security measures. At least they could have given the health insurance facility as a security against health related risks. At this juncture, this study throw a light to provide micro insurance facility to the disadvantaged and marginalized sector.

3.Objectives of the study:

The present study has following objectives:

1. To analyze the Socio-economic profile of the fisherwomen in coastal Karnataka.

2. To assess the need for micro insurance to fisherwomen.

3. To suggest policy measures for supporting micro insurance in fisheries postharvest sector.

4.Research Methodology

The present study is based on the primary data collected through structured questionnaire from the fisherwomen of Dakshina Kannada and Udupi districts. Stratified random sampling method is followed. The sample size is 268. In addition to the primary data, to review the earlier study and to bridge the research gap, journals, reports of state and central government and other research institutions have been studied.

Table.1 Distribution of sample fish retailers in urban and rural markets

Respondents (*i.e.*, Retailers)	Urban Markets		Rural markets		Total sample size	Total useable response
	Sample size	Useable response	Sample size	Useable response		
1. Market traders . Fresh fish retailers	112	100	54	51	166	151
b. Dry fish retailers	20	16	14	11	34	27
2. Head loaders	27	24	33	33	60	57
3. Two-wheeler retailers	15	10	25	23	40	33
Total	174	150	126	118	300	268

Source: Survey Data 2010

Techniques of Analysis:

The primary data collected by using the sampling framework explained earlier was analysed by usingStatistical Package for Social Science (SPSS version 13). The important statistical tools and techniques such as percentage, average, diagrams and graphs, chi-square test, and Garrett's ranking technique were used to analyse the data.

5. Review of Literature

Kurien and Paul (2001), in their paper- Social Security Nets for Marine Fisheries studied the provision of social security in the fisheries sector of Kerala State. The study focused on the growth and changing composition of social security provisions, and enumerated the achievements and problems being confronted by a developing maritime state in taking concrete and definitive measures to ensure that a section of the population, which was initially left out of the mainstream. They found that that providing social security is not seen merely as a measure to solve temporary economic insecurity. It also seeks to address the problems of chronic poverty. Social security measures are envisaged as public provisioning to the vulnerable, thereby empowering them in their private pursuit of livelihood.

Sugunan V.V (2009) in his article Domestic Marketing and Post-Harvest Mnagement in inland fisheries examined the problems of domestic fish marketing and pointed out that processing, value addition and hygienic handling are still a far cry for the domestic market especially in respect of

inland fish. He suggested that necessary market infrastructure, research support for development and commercialization of value added products, national standards for fish processing and food safety, quality control regime would strengthen the domestic fish marketing.

Gracy (1988) made a comprehensive analysis of role of women in fisheries and impact of advancement on socio-economic conditions of women in Kerala. The study revealed that the technological advancement in fisheries has brought a lot of change in the socio-economic conditions of fisherwomen adversely affecting their livelihood and no attention was given acknowledge and understand the role of women in fisheries.

6. Data analysis and interpretation

Livelihood Profile of Sample Retailers

Livelihood profile provides a comprehensive picture of the various characteristics of the households. Such details help to understand not only their present socio-economic status but also options available to them to enhance their income. It further helps to measure the impact of any policy changes in their income and other employment opportunities. The characteristics include the family size, average age, average annual income of the retailer, average annual family income, household food and non-food expenditure, occupation structure, average number of male and female children in the family, and average number of male and female members in the family. Table 4.2 presents the data collected on livelihood profile of the four identified retail categories and makes a meaningful comparison.

Table 2 Livelihood profile of sample retailers

Characteristics	Unit	Retail categories				Overall (N=268)
		Fixed point retailers		Mobile retailers		
		Fresh fish (N=151)	Dry fish (N=27)	Head loaders (N=57)	Two-wheeler retailers (N=33)	
Average family size	No.	5.40(±2.30)	5.60(±2.40)	5.60(±2.80)	5.50(±1.70)	5.50(±2.30)
Average age	Years	46(±8.77)	55(±7.86)	52(±10.32)	38(±10.35)	47(±10.31)
Average annual Income of retailer	`	55652.98 (±21491.61)	47244.44 (±21461.05)	44368.42 (±14451.43)	67418.18 (±9676.82)	53854.48 (±20188.43)
Average family income	`	130100.66 (±77769.43)	119911.11 (±74411.11)	111252.63 (±111252.63)	104509.09 (±90098.13)	121914.18 (±77728.79)
Average annual savings	`	8450.70 ±4238.58)	4130.43 (±1713.69)	3472.00 (±1865.57)	9563.64 (±7737.15)	7462.70 (±4790.46)
Household annual food expenditure	`	27949.03 (±12190.84)	24104.44 (±6354.52)	25327.58 (±11555.30)	30278.18 (±8418.74)	27290.96 (±11274.83)
Household annual non-food expenditure	`	21585.43 (±29585.49)	18979.63 (±15012.69)	9994.74 (±5575.37)	53163.64 (±100589.02)	22746.08 (±43406.61)
Main occupation of the	-	Fishing	Fishing	Fishing	Fishing	Fishing

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household head						
Main occupation of the dependants	-	Fishing	Fishing	Non-fishery services	Non-fishery services	Not applicable
Average no. of male members in the family	No.	2 (± 1.37)	2 (±1.43)	3 (±1.51)	2 (±1.15)	2 (±1.38)
Average no. of females in the family	No.	3 (±1.25)	3 (±0.98)	3 (±1.10)	2 (±.80)	3 (±1.18)
Average no. of children in the family	No.	3 (±0.56)	3 (±0.64)	3 (±0.64)	2 (±0.32)	2.75 (±0.45)
Male children	No.	1.30(±0.46)	1.20(±0.45)	1.40(±0.51)	1(±0.00)	1.24(±0.43)
Female children	No.	1.39(±0.65)	1.50(±0.84)	1.80(±0.77)	1.43(±0.51)	1.51(±0.66)
Average no. of married members per family	No.	1.44	1.70	1.63	2.00	1.57
Percentage of households depending on						
a. Fish harvesting	Per cent	70.75	70.42	53.85	0.00	60.97
b. Fishery related activities	Per cent	10.00	5.63	9.61	57.89	13.45
c. Non-fishery services	Per cent	17.00	22.54	30.77	42.11	22.8
d. Business	Per cent	2.25	1.41	5.77	0.00	2.78

Note: Figures in parentheses represent SD   Source: Survey Data 2014

It is evident from the above table that the average family size was 5.5 and two wheeler traders were youngest among all categories. Age-wise distribution of retailers shows that majority of the women retailers belonged to middle age (46-55 years). The average age of men retailers was 38 years. Thus, it can be inferred that the younger women are quite skeptical of entering fish marketing business because of social reasons and marketing is mainly carried out by the middle aged, married women both in the case of fresh fish and dry fish retailers. One of the most important determinants of the performance of retailers is annual average family income. The bicycle traders have highest annual business income (`67,418) followed by fresh fish retailers (`55,652) and dry fish retailers (`47,244). Thus, the male fish sellers with quick mode of transportation were able to reach the consumers and sell at a better margin compared to their other counterparts. Thus, over the years women-head loaders are experiencing declining business income and are competed out. In terms of annual family income the women fresh retailers had highest gross income due to multiple sources, as shown in the above table, followed by dry fish and head loaders.

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Another indicator of success of two-wheeler retailers is indicated by the average annual savings of `9,563 compared to only `3,472 for their counter parts namely women head loaders. Thus, in spite of higher operating cost (transportation, fuel etc.), two wheeler retailers were able to achieve higher savings rate. Household expenditure on food and non-food items is an indicator of quality of life. Higher percentage of expenditure on non-food items indicates increased access to social activities, utilities and consumer goods. The share of non-food expenditure as a tool for measurement is commonly used in most of the studies. The mobile-retailers (male) have incurred an expenditure of `53,163.00 annually on non-food items which is around 5 times higher than their counter parts (head loaders) and 2 times higher than fresh fish fixed point retailers. One of the main reasons for higher expenditure among two wheeler retailers could be their higher income from non fishery business services. The families of men retailers have diversified sources of income such as fishery and non-fishery related business as an additional sources of income and, thus, are less vulnerable to the fluctuations in their income from retailing. Thus, the emerging scenario indicates that men retailers are able to compete with the women retailers and are likely to emerge stronger in the coming years and threatening the role of fisherwomen. The demographic features of the families across the retailer category do not reflect much difference. The percentage of households with income from non-fishery services was higher for two wheeler retailers (42 per cent) followed by head loaders (31 per cent) and dry fish retailers (23 per cent). Majority of women retailers of all categories are dependent on fish harvesting except men retailers. We observe an integration of harvesting and retailing among women retailers and, thus, the loss of income due to poor catch is compensated by higher prices through retailing, although these operations are carried out independently. In the case of men retailers such integration is found with fishery related and non fishery related business. The head loaders who do not have such integration are likely to be more susceptible to business risks and have fewer livelihood options.

Level of Education

Educational status of the retailers represents their opportunity to move to other occupations, awareness of market conditions and also avail benefits from state sponsored welfare schemes. Further educational achievements also represent social status and communication ability. Hence, an assessment of the educational achievements was incorporated in the analysis and presented in Table 3.

Table 3 Level of education

| Level of education (No. of years) | Retail categories | | | | Total |
| | Fixed point retailers | | Mobile retailers | | |
	Fresh fish	Dry fish	Head loaders	Two-wheeler retailers	
1-7	82(54.30)	13(48.10)	39(68.40)	15(45.50)	149(55.60)
8-10	23(15.20)	5(18.50)	3(5.30)	6(18.20)	37(13.80)
12 and above	3(2.00)	1(3.70)	0(0.00)	3(9.10)	7(2.60)
No education	43(28.50)	8(29.60)	15(26.30)	9(27.20)	75(28.00)
Total	151(100)	27(100)	57(100)	33(100)	268(100)

χ^2=14.167, p=0.117, NS d.f. = 9   Source: Survey Data 2014

Note: Figures in parentheses represent percentage.

Table 3 describes the educational achievements of the retail respondents. Accordingly, only 2.6 per cent of the total sampled retailers were educated above 12th standard. The educational qualification of men two-wheeler retailer was relatively low compared to their counterparts such as

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head loaders. Although the region was declared as fully literate, it is quite disheartening to note the fact that nearly 30 per cent of the overall respondents have no formal education. Further, the level of education has no significant impact upon the retail categories of fixed-point and mobile-retailers (χ^2 =14.167, p=0.117).

Allocation of Working Hours

Distribution of working hours of the fish retailers was classified into household, personal, economic and social activities to represent the real time allocated by them for business and non-business activities. The study of allocation of working hours provides an insight into the possible opportunities to increase the working hours by shifting from leisure. Further, such analysis also helps in understanding the latent under-employment present in the fisheries sector.The average daily hours spent on all these four activities are shown in Table 4

Table 4 Allocation of working hours (No. of hours)

Total hours spent per day on activities	Retail categories				
	Fixed point retailers		Mobile retailers		Overall (N=268)
	Fresh fish (N=151)	Dry fish (N=27)	Head loaders (N=57)	Two-wheeler retailers (N=33)	
Household	2.62 (10.82)	3.11 (12.96)	2.92 (12.17)	3.64 (15.17)	3.07 (12.79)
Personal	7.57 (31.54)	8.78 (36.58)	8.84 (36.83)	9.64 (40.17)	8.71 (36.29)
Economic	12.64 (52.67)	11.10 (46.25)	10.68 (44.50)	9.55 (39.79)	10.99 (45.79)
Social	1.17 (4.88)	1.01 (4.21)	1.56 (6.50)	1.17 (4.87)	1.23 (5.13)
Total	24.00 (100)	24.00 (100)	24.00 (100)	24.00 (100)	24.00 (100)

Note: Figures in parentheses represent percentageSource: Survey Data 2014

The data presented in the Table 4 shows that women retailers in general tend to spend 11-13 hours on business compared to 9-10 hours by men retailers. Thus women retailers are deprived of their traditional role in the family due to increased hours of work in the marketing activities. The two-wheeler retailers by spending least number of hours on business/ economic activity were able to earn more business income. It indicates that the access to transportation and good communication could positively influence their income and reduce the time spent on business activities. One of the activities classified as social activity although apparently appears to be non productive, has implications in the success of the business.

Expenditure Patterns of the Retailers

To understand the socio-economic conditions of fish retailers, analysis of living conditions such as income and expenditure levels are very important. Income of the family provides a broad picture of the economic status of the people, their capacity to save, and propensity to consume. Expenditure pattern of the family provides a broad picture of the spending habit and amount spent on food and non-food expenditure. Analysis of Food expenditure pattern helps to understand dietary habits and nutritional status. The food habits of people vary according to socio-economic factors,

regional constraints and ethnic traditions. Similarly, the share of expenditure on non-food items indicates the importance attached to the investment in human resources such as education, health and utilities. With these objectives in mind the study has been carried out and relevant data have been presented in Table 5.

Table 5 Expenditure patterns of the retailers

Expenditure pattern	Retail categories				Overall (N=268)
	Fixed point retailers		Mobile retailers		
	Fresh fish (N=151)	Dry fish (N=27)	Head loaders (N=57)	Two-wheeler retailers (N=33)	
Total food expenditure (`)	27949.03 (±12190.84)	24104.44 (±6354.52)	25327.58 (±11555.30)	30278.18 (±8418.74)	27290.96 (±11274.83)
Percentage of expenditure on					
Cereal and pulses	35.57	36.10	40.17	34.59	36.61
Fish	23.91	24.36	22.62	20.19	22.77
Milk and milk products	12.33	13.44	13.47	17.29	14.13
Meat/Chicken/Egg	5.27	5.35	4.28	9.40	6.07
Vegetables	9.46	9.16	9.41	9.37	9.35
Fruits	8.91	6.94	7.36	7.70	7.73
Eating outside	4.55	4.65	3.23	2.16	3.65
Total non-food expenditure (`)	21585.43 (±29585.49)	18979.63 (±15012.69)	9994.74 (±5575.37)	53163.64 (±100589.02)	22746.08 (±43406.61)
Percentage of expenditure on					
Education	50.83	42.35	30.86	70.62	48.67
Medicine	27.04	36.09	28.86	17.07	27.26
Clothes	22.13	21.56	40.28	12.31	24.07
Total expenditure	49534.46 (±32735.50)	43084.07 (±17455.01)	35322.32 (±16339.83)	83441.82 (±102940.62)	50037.04 (±46334.60)
Percentage of food expenditure on total expenditure	56.42	55.95	71.70	36.29	55.09
Percentage of non-food expenditure on total expenditure	43.58	44.05	28.30	63.71	44.91

Note: Figures in parentheses represent SD   Source: Survey Data 2014

Table 5 shows expenditure pattern on various food items as an indicator of the socio-economic status of the sample retailers. The retailers as one of the production and distribution systems tend to incur, about 23- 25 per cent of their total food expenditure on fish at imputed price. The fish retailers tend to spend relatively low on fruits and vegetables, meat/chicken/egg, milk and other items when compared with cereals and pulses and fish. The milk consumption per day is around ½ liter which is relatively low when compared to milk consumption by other. It was estimated that the average state monthly family expenditure on milk and milk products for the monthly income category of `10,000 would be around `2,500/month whereas it is only `300 for fisherwomen families (GOK 2009). The

fresh and dry fish retailers tend to spend annually 4.55 and 4.65 per cent of their total food expenditure respectively on eating outside.

Education and health together constitute around 76 (*i.e.* 48.67+ 27.26) per cent of the total non-food expenditure. Two-wheeler retailers incur proportionately less on health and more on education than other categories of retailers. The dry fish retailers spend around 36 per cent of their non-food expenditure on health (`7,000 per year) compared to 17 per cent by mobile men-retailers (`5,000 per year). Thus, in the absence of proper health insurance, these women-retailers become much vulnerable to financial risks. Overall the food expenditure constitutes 71 per cent among head loaders, whereas two-wheeler traders spend only 36 per cent indicating gross differences in their socio-economic status. Higher share of food expenditure indicates that women head loaders tend to spend/invest less in education, health etc.

Health problems of fisherwomen

The different groups of respondents prioritized different health problems. Women from the fresh fish retailer group (83%) reported rheumatic complaints such as joint pain, pain in limbs etc. which are classified as occupational related illness in the study. The probable reason for the same could be because they sit for prolonged hours in squatting position and in the case of headloadersdoor to door sellers, they have to walk long distances with a heavy basket on their head. A large number of the respondents from the dry fish retailers group (74%) reported that they had suffered from malaria in the past one month as malaria is a common outbreak in the area studied.

The members of all groups have complained of suffering from some form of gastric problems and this was highest among the fresh fish retailers. This may be because they leave home early in the morning without eating in order to reach the landing center early. The reasons for the above health concerns are mainly attributed to poor working conditions and inadequate infrastructural facilities. Efforts must be taken to mitigate

Table 6 **Health problems of fisherwomen**

Types	Illness	Fresh fish re-tailers	Dry fish retailers	Head loaders	Two-wheeler retailers
Occupational	Rheumatic complaints	126 (83)	20 (74)	40(70)	10(30)
Contagious	Typhoid	13 (9)	5 (19)	5(9)	10(30)
Non-contagious	Jaundice	5 (3)	2(7)	3(5)	8(24)
	Gastric	35(23)	3 (11)	5(9)	6(18)
	Malaria	40 (27)	16 (59)	25(44)	12(36)
Gynecology Related		45 (30)	2 (7)	20(35)	-
Any other		20(13)	12(44)	25(44)	5(15)

7.Conclusion and policy implications:

The average family size of the fish retailers was 5.5. The two wheeler traders were youngest among all categories. Majority of the women retailers belonged to middle age (46-55 years). The younger generation is skeptical to enter fish marketing business, due to social reasons and marketing is mainly carried out by the middle aged, married women both in the case of fresh fish and dry fish retailers. Only 26 per cent of the total retailers were educated above 12th standard. Head loaders were better educated than two-wheeler retailers. Widow women who constitute majority (63 per cent) of dry fish retailers and head loaders are more exposed to risk factors as indicated by higher standard deviation of income.

.The mobile-retailers (male) have incurred an expenditure of `53,163 annually on non-food items which is 5 times higher than their counter parts (head loaders) and 2 times higher than fresh fish fixed point retailers. One of the main reasons for much higher expenditure among two wheeler retailers was due to their higher income from non fishery business services. The fish retailers tend to spend very less on fruits and vegetables, milk and other items. The milk consumption per day is around ½ liter which is the least for comparable annual income among other category of workers. The fresh and dry fish retailers tend to spend `45.50 per day on eating outside which constitutes 4.5 per cent of their total food expenditure. The education and health together constitute 65-75 per cent of total non-food expenditure. Men retailers incur least expenditure on health and highest on education. The dry fish retailers spend around 36 per cent of their non-food expenditure on health (`7,000 per year) compared to 17 per cent by mobile men-retailers (`5,000 per year). Thus, in the absence of proper health insurance, these women-retailers become much vulnerable to health and financial risks. The study clearly indicates that there is a urgent need to protect the health conditions of the fisherwomen to sustain their livelihood. The government has to extend the health insurance schemes to all the fisherwomen who are engaged in fish retailing. Health check up camps must be organized frequently at the market places. All the markets must be provided with modern facilities.

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