

On 12th July 1961, the unfinished earthen embankment at Panshet breached in the early hours of morning and as a result a raging torrent of water swept through Poona later in the day. The face of the city and the fate of thousands of its citizens were changed beyond recognition. This study based on the field investigation during the subsequent trying times attempts to analyse how the city and its administrators faced the enormous tasks of rehabilitation and reconstruction. The city was fortunate enough to receive large amounts of assistance from within the state and beyond. But its administration and distribution left much to be desired. The manner in which the basic problem — restoration of normal water supply to the city and for irrigation purposes — was tackled, became a singular example of indecision and consequent waste. Lack of courage was again evident in dealing with the problem of development of the river front. A housing programme was speedily launched but its impact on the total development of the city was not taken into account. The study analyzes how the nature of some of the problems has become more complicated since the disaster and stresses the need for a bold, integrated and planned approach, more particularly in solving the problem of acute scarcity of housing in the city.

DELUGE IN POONA

Aftermath and Rehabilitation

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ASIA PUBLISHING HOUSE

BOMBAY · CALCUTTA · NEW DELHI · MADRAS · LUCKNOW
BANGALORE · LONDON · NEW YORK

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Poona 4.

Published by V. M. Dandekar at the Gokhale Institute of Politics
and Economics, Poona, and printed by D. V. Ambekar, Aryabhushan
Press, 915/1 A Shivajinagar, Poona 4.

Foreword

The present publication of the Institute offers a descriptive account of the Panshet Dam disaster which overtook Poona on 12th July 1961 and the problems of relief and rehabilitation that followed in its wake. In Chapter I is briefly described the disaster : 750 residential structures were completely destroyed and 1650 were extensively damaged. About 10,000 families lost their homes, and over 26,000 families suffered losses in terms of family belongings. About 36,00 shops suffered extensive loss in terms of stocks of goods. As many as 100 institutions, public and private, were wholly or partly affected. The Poona Municipal Corporation, some of the offices of the State Government, a few banks and other bodies lost their valuable records and other papers. Food grains stored in warehouses were destroyed. The bridges and main roads in the city were extensively damaged. The telephone and electric lines were destroyed and the water storage serving the city was totally lost. The total loss is estimated to be about Rs. 175,000,000. The details are given in Chapter III.

The first and naturally the most urgent problem was that of restoring the water-supply. This is described in Chapter II. Next came the organisation of immediate relief with attendant human problems involving several thousand people and costing about Rs. 7,500,000. Once the immediate relief was organised, attention had to be given to rehabilitation, first of all, of the disrupted economic life. This was achieved mainly by loan assistance supported by some cash grants and subsidies. This required another Rs. 7,500,000. These measures are described in Chapter IV of the report.

A more difficult problem was that of providing housing to nearly 14,000 displaced families. About a third of these were able to return to their own houses and occupy them after necessary repairs. Provision of housing to the remaining naturally took time. By the end of March 1965, that is in about four years after the disaster, nearly 6,000 families were provided permanent housing through various schemes sponsored by the government and co-operative housing societies. The details of the several housing schemes appear in Chapter V. The remaining 3 or 4 thousand are presumably still living in make-shift arrangements. A number of these probably had never any permanent housing and have always lived in temporary huts erected in slums. They have returned to their permanent lot and slums have arisen in their original places.

The problem of housing and rehabilitation of the families displaced by the Panshet Dam disaster has focussed attention on the housing problem in Poona which, with the unplanned and indiscriminate growth of the city, is becoming increasingly more acute every day. In the final chapter, the authors

have reviewed this problem. The main facts are something to be concerned about. On the basis of 1954 incomes, costs and prices, it seems that about one-third families living in Poona are incapable of paying the 'economic' rent for even 100 sq. ft. of living-area. Another one-third can pay the economic rent for a room and kitchen but housing at economic rent cannot be provided through private building effort. Thus if we suppose that the new arrivals in the city belong to more or less the same income classes as the existing population, it means that only about a third of the new families are able to secure accommodation at the prevailing market rent. Others can either cause over-crowding in the existing housing or create slums. It is to be hoped that the civic authorities will pay urgent attention to this problem before it is too late.

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Preface

POONA CITY was receiving its water supply since eighteen seventies from a reservoir at Khadakwasla, where a masonry dam on river Mutha was built. To augment the water supply, a project of building a new dam on a tributary of river Mutha, at Panshet, 24 miles from Poona was undertaken in 1957. It was planned to complete the construction of dam in five working seasons and to impound water in 1962. However, the plans were changed subsequently and water was impounded during 1961, when the work on the dam project was not fully completed. The earthen embankment built at Panshet, collapsed on 12th July 1961.

The danger was lurking around the corner for two days prior to the actual collapse of the dam. Yet no plans or preparations were made to alert and rescue the people from the threatened areas. Even after the collapse of the Panshet dam, little official effort to minimize the losses was evident. Nearly three hours after the collapse of the dam, massive water-columns crashed into Poona city and ravaged vast areas along both the banks of the river Mutha. Losses suffered by the citizens of Poona in terms of property lost and amenities wrecked, were colossal.

The present enquiry was undertaken to study the aftermath of Panshet disaster. The city was confronted with a multitude of problems which called for a speedy solution, so as to restore the water-supply, repair the civic amenities, administer relief to the affected, and rehabilitate the homeless. It was considered important to study how these problems arising out of a calamitous situation were solved, how the people reacted to the calamity, and how the authorities faced the enormous task of administration of relief. What was their attitude towards rehabilitation? Was it viewed as a mere patchwork, or cast into the total development framework of the city? An attempt is made to examine and answer some of these questions. The study is mainly confined to an examination of the immediate aftermath of the disaster. Evaluation of the success of rehabilitation does not come under the purview of the study as this would have involved an extensive new enquiry at a later date. The present study was launched immediately after the disaster and the necessary information was collected from numerous sources. A large number of individuals and government and private agencies were approached to obtain the requisite data. Without their whole-hearted assistance and co-operation, the work would have been impossible.

We should like to record the help extended by the staff from various government offices, viz., 'Flood' and 'Supply' branches in the Poona Collectorate, the Directorate of Industries, the Public Works Department, Maharashtra

Housing Board, Registrar of Co-operatives, and the Chief Minister's Relief Fund Committee. We are highly obliged to them for their help. Data were collected from the office of the Poona Municipal Corporation and agencies like Mahratta Chamber of Commerce and Industries, co-operative and commercial banks, Zonal Committees and a number of social and charitable institutions. We are very grateful to all these agencies for their kind co-operation. We are also indebted to a large number of individuals, businessmen, professionals and others for their co-operation. The survey of damaged houses would not have been complete without the willing co-operation of the house-owners from the affected parts of the city, and we should like to record our thanks to them. Thanks are also due to heads of educational institutions for supplying information relating to administration of relief centres.

We owe a debt of gratitude to Prof. D. R. Gadgil for his invaluable guidance during all the stages of the work. We are grateful to Mr. M. L. Chaphekar and Mr. D. A. Gadkari, for their elucidation of technical details of the Khadakwasla project. We should also like to thank our colleagues in the Gokhale Institute for their assistance in the investigation. Special mention should be made of Mr. D. P. Apte and Mrs. S. Dhavale who carefully examined the draft of the report and made valuable suggestions.

The publication of the report has been delayed due to certain unavoidable circumstances. The work of collection of data was completed by August 1962, and the initial draft of the report was ready by the end of 1962. Most of the data presented in the report therefore relate to the position as at the end of July 1962. Information is brought up to date only in the case of certain important issues.

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CHAPTER I

The Day of Deluge

IT WAS WARM and sunny in Poona on 12th July 1961, after a spell of almost continuous rain nearly for a fortnight. It was Wednesday, a working day, and the citizens were busy as usual with their routine work. There was not even a faint shadow or a lurking suspicion of the danger which was in the offing. The events that followed after mid-morning were wholly unexpected, unthought of and even beyond the imagination of all.

The river Mutha was in spate because of the incessant rains in her upper reaches, and many people with their usual inquisitiveness watched the flood. They were amazed at the furious speed at which the turbulent water-column was moving, yet did not realize its significance. The water level was rising continuously and the water was spreading to hitherto unthought of regions. Massive waves were lashing against the bridges and the buildings near the river front with a crackling force. At about 11-30 in the morning, the Sambhaji bridge, one of the main bridges on the river Mutha, was over-topped, and the sprawling water-columns rapidly engulfed large adjoining areas. Nevertheless nobody knew how long the rise would continue and how far the water would spread.

Columns after columns still invaded the city, and at about 1 p. m. the walls of the Shivaji bridge felt the thumping impact of the besieging water-column and soon that highest bridge in the city succumbed to it. The Khadakwasla embankment breached at about 2-15 p. m. This led to a further rise in the water level in Poona. The water was spreading in the city continuously for about six hours, and the area within about two to three furlongs from both the banks of the river was submerged. The central part of the city became a surging, turbulent lake, where even the tops of tall trees were scarcely visible. When water level was at its maximum, the height of the water-column was 54 feet above the river-bed near the Shivaji bridge. The height from the road-level was 22·5 feet near the Omkareshwar temple and 23·5 near the Congress House. The water level near the Sambhaji bridge on Kelkar road, was 25·5 feet above the road level and at Hind Vijaya theatre it was 22·5 feet. By 4 p. m. decline in the water level set in and by late evening, a substantial part of the city became accessible. Thus a large part of the city along the river was submerged for more than seven hours on 12th July 1961.

The wards adjoining the river Mutha, viz., the whole of Mangalwar ward, together with the major portion of Shaniwar, Narayan, Somwar, and Kasba wards were submerged. Parts of Sadashiv, Budhwar, Erandawana, and Shivaji-

nagar wards were inundated. The swollen water from Mutha pushed back Mula waters which spread in certain parts of Suburban *wadis* and Kirkee Cantonment. Parts of Nana, Raviwar, Ganesh, and Nagesh wards were also flooded as water rushed through Nagzari, and Manik stream.

Citizens of Poona were caught totally unawares in this calamity. The high flood noticeable from the morning was considered normal, caused by the heavy rains in the upper reaches of the river. Even when their premises were flooded the residents of low-lying areas thought it safe to move to upper storeys. Before they could realize the seriousness of the situation they were surrounded by the water. The fate of those residing in the interior was no better. They could never visualize waters of Mutha touching their thresholds and failed to realize the mortal danger to life and property. Consequently, majority of them were able to save barely their lives, and could hardly save their belongings. Moreover, the ferocious speed of the water, the rapid rise in the water level, and the danger of crumbling buildings, made escape difficult. Indeed, many had to wait anxiously on roof-tops or even on tree-tops in the mortal danger of being swept away by the ever-rising waters. Luckily rescue work was carried out spontaneously in almost all the localities along the river banks by groups of young men who courageously evacuated large number of persons particularly school children, hospital patients, women, the old, and the invalid. In some cases they had to move out the people forcibly, as many people were either ignorant of the severity of the situation or were plunged into despair by the stunning blow. Thanks to the timely voluntary rescue work, the toll of life, as reported officially, was only 29. However, under such emergency conditions it was scarcely possible to save any property-valuable, ornaments, documents and the like. The fate of the thousands and the face of the city were permanently changed. Fortunately the dam did not collapse during the night, otherwise the life of tens of thousands of the people would have been jeopardized.

With the dawn of the next day, the affected part of the city became the busiest. Thousands of homeless people who spent the night in precarious conditions, returned to their erstwhile dwellings to find their houses reduced to huge mounds of rubble. Many more thronged to witness the spectacle of devastation. The city police force proved utterly inadequate to control the vast, agitated crowd. Out of this confused atmosphere, arose suddenly the rumour of another flood due to the collapse of Khadakwasla dam and the stricken population was gripped with panic. Even the policemen on duty did not know the facts and tried to console the people assuring that the ensuing flood would not be more severe than the previous one. The people ran frantically to reach places of safety. The panic lasted about an hour during which the affected part became desolate save a few souls who, as was revealed later, indulged in pilfering.

Danger to the Panshet Dam was impending for about two days. It was known

that with the collapse of the dam, Poona city would be in a mortal danger. Yet the engineers did not seem to have prepared any maps indicating the possible spread of water into the city and the extent and nature of danger that would befall the city. The civil authorities held an emergency meeting on the evening of the 11th but decided to take only the normal flood-protection measures. Ironically enough the local newspapers proclaimed on 12th morning that the situation at Panshet was under control. The Panshet Dam was overtopped at about 6.30 in the morning of 12th July and the authorities in Poona came to know of this immediately. The water-column reached the city after three hours. Within this time the authorities could have organized rescue measures, alerting the police and the home-guard, mobilizing vehicles from private and official sources and requisitioning boats and other help from the military.

It seems that the possible consequences of the collapse of the dam were never realized by the authorities. Even when such a havoc was caused in the city, their attitude and behaviour appeared to be indifferent and casual. There was not even any official declaration by the civil authorities or the police, or any news on the radio about the collapse of the Panshet and Khadakwasla embankments. Citizens of Poona had to pay a very heavy price for the inefficiency of the bureaucracy.

Here, in a nut-shell, is the aftermath of the Panshet disaster: 750 residential structures were completely destroyed and 1,650 structures were extensively damaged. About 10,000 families lost their homes and over 26,000 families suffered losses in terms of family belongings, valuables and other movable property. Approximately 3,600 shops suffered extensive loss in terms of stocks of goods. As many as 100 institutions—public and private—were wholly or partly affected. The Poona Municipal Corporation, some of the the government offices, a few banks and other establishments lost their valuable records and other papers. Food-grains stored in government godowns near the railway bridge were putrefied. The bridges and some important roads suffered extensive damage. The telephone and electric systems were paralysed, and the water storages were totally lost.

The inquiry

With a view to studying the aftermath of Panshet disaster in its various aspects a study was launched by the Gokhale Institute in August 1961. The first task was to collect basic information about the affected families. The staff of the Institute visited all the relief centres where affected families had taken temporary shelter and recorded the names and past residential addresses of the affected families. About 6,000 families were thus listed. Another 2,000 families were listed on 'kitchen centres' where free meals were served to the affected families.

Details regarding family composition, estimates of personal loss, occupa-

tion of the head of the family, income of the family, and condition of their residence after the disaster were available on application forms filled by the affected families seeking aid in various forms, viz., cash, food-grains and residential accommodation. Details available on these three types of forms were transcribed to prepare a complete register of the affected families. These data proved useful in estimating the number of affected families, the number of families receiving aid, the loss to private property, and in tracing the movement of families after the disaster.

Another major task was to estimate the number of artisans and businessmen affected in the calamity and to prepare an estimate of the loss suffered by them. The information available through the applications filed by artisans and traders with the government and some commercial and co-operative banks for grant of assistance or loan was useful to prepare estimates of loss. Municipal records were consulted for estimating the number of affected shops and establishments. Details regarding the loss suffered by the industry were obtained from the Mahratta Chamber of Commerce and Industries.

A special survey of houses damaged in the disaster was conducted with a view to preparing an estimate of the number of rooms lost and the number of families displaced. The work of the survey was carried out between December 1961 and March 1962.

The details of loss to the property of the Poona Municipal Corporation and that of the Central and State Government departments, were obtained from the respective offices. The information about the loss to the property of schools and colleges, temples and mosques, hospitals and other institutions was available through the applications submitted by these institutions to the Chief Minister's Relief Fund Committee¹.

The information about the amount and type of aid distributed among the affected families was obtained from the government offices, the C. M. Fund Committee, and a number of private organizations that collected and distributed aid in various forms. For obtaining information regarding the administration of relief centres, the authorities of a number of relief centres were interviewed.

Details regarding the schemes undertaken for the restoration of water supply, for the rehabilitation of business and industries and for the provision of housing accommodation were obtained from the relevant government offices. The variety of information collected from different sources is collated for presenting the consequences of the Panshet calamity.

¹ Hereinafter referred to as the C. M. Fund Committee.

CHAPTER II

The Problem of Water Supply

POONA WAS a small town prior to 1700, and water supply from the river Mutha, from streams like Nagzari, and private and public wells was more than adequate. With the establishment of Poona as a capital by the Peshwas in 1720, gradual expansion set in and necessity of augmenting the water supply was felt. The third Peshwa therefore built the Katraj aqueduct by about 1750. The source of the aqueduct lay in two tanks, one below the other, impounded by masonry dams in Katraj valley eight miles to the south of Poona. Supply from the tanks was partly dependent upon the impounded water and partly upon the springs in the tank-beds. The aqueducts were an arched masonry work about two-and-half feet wide and six feet high. The water was released in a number of *uchwas* (dipping-wells) built in different parts of the city, viz. Budhwar, Raviwar and Shukrawar wards. The daily water-supply from Katraj tanks was 650,000 gallons.

Three more aqueducts were built after 1790 on the same style as Katraj, though on a smaller scale, by important noblemen. The source of one of these, viz., Nana Phadanvis aqueduct with a daily water-supply of about 100,000 gallons, was a well in Narhe Ambegaon village, six miles to the south of Poona. It supplied water to Vishrambag palace and to two dipping-wells in Sadashiv ward. The other two, viz., Raste and Choudhari aqueducts, rose from springs in Kondhwa village, seven miles south of the city, and supplied water to dipping-wells near Raste and Choudhari mansions in Rasta, and Ganj and Vetal wards respectively. Each of these two aqueducts supplied daily about 50,000 gallons of water.¹ Water from the aqueducts was adequate for all the wards of the city except Shaniwar and Mangalwar wards. It was used for drinking as well as for other purposes wherever it was plentiful. Otherwise for washing and bathing, water from the river and the streams was used.

The growing importance of Parvati temple led the last Peshwa to prepare, in 1810, a scheme for providing water to Parvati side. The scheme, however, never became a reality. After the fall of the Peshwa in 1818, there was a severe set-back to the growth of the city for a period of about three decades.

With the adoption of Poona as a seasonal capital of Bombay Presidency by the British and the construction of railway in 1860's, the status of the city improved and again a phase of expansion set in. For a growing city the old arrangements of water supply proved increasingly inadequate. The govern-

¹ *Gazetteer of the Bombay Presidency*, Vol. XVIII, Part III, Poona, Government Central Press, Bombay, 1885, pp 327-28.

ment therefore appointed Lt. Col. Fife for recommending a water-supply scheme for supplying water to Poona and Kirkee and for providing irrigation facilities to alleviate distress caused by famine. On the recommendations of Lt. Col. Fife it was decided to construct a reservoir with a capacity of 3000 m. cft. on Mutha river, 10 miles up-stream of Poona, near Khadakwasla village. The work on Khadakwasla dam commenced in 1869 and was completed by 1879. The dam consisted of masonry facings in lime mortar with cement bearing. The length of the dam including the waste weir² was 4827 feet and the maximum height above the reservoir bottom was 107 feet. Water from Lake Fife was carried through two canals, viz., the Right Bank Canal and the Left Bank Canal. The Right Bank Canal was 70 miles in length, but perennial irrigation from it was restricted only to about 24 miles from the head. The Left Bank Canal was only 18 miles in length, and it supplied water only for irrigation.

Important water works, viz., Poona City Water Works, Poona Cantonment Water Works, and Kirkee Water Works, were situated on the Right Bank Canal. The supply for the city was taken off the canal, one mile to the east of Parvati hill at Swargate where arrangement for settling the water and straining it through filter beds was made. The water was distributed in the city through iron pipes. The chief part of the Poona Cantonment water supply was drawn from the canal near St. Mary's Church. Raw water was pumped from the canal into the settling tanks, purified and then supplied to the Cantonment area.

Number of water connections

According to the *Gazetteer*³ there were 1,150 connections in the city in 1884, which means that about 15 per cent of the houses in the city had water connections. On an average 6,50,000 gallons of water was taken daily from Lake Fife for use in the city. In addition, water from aqueducts was available through 84 dipping-wells in different parts of the city. The water available from the aqueducts and Lake Fife worked out to about 15 gallons per head per day. Besides, with the opening of canals, the water level in streams and wells remained high throughout the year. Water from these streams, runners from canals wherever within reach, river, and wells which numbered 1,290,⁴ supplied water for bathing, washing, and for cattle, and could meet fully the demands of the city.

The number of water connections increased gradually, and in 1896-97, there were 2,104 water connections. Pipe lines laid out some 20 years back when

² *Gazetteer of Bombay State* (Revised Ed.) District Series Vol. XX, Poona District, 1954, p. 639.

³ *Gazetteer of the Bombay Presidency op. cit.* p. 325.

⁴ *Ibid.*

the number of water connections was very small, proved inadequate. With the increase in the number of connections pipes of larger dimensions had to be substituted progressively. In 1911-12, the number of water connections was 2,723, when about 30 per cent of the houses had water connections. The number increased to 3,250 in 1917-18. During the period 1880 to 1918, the average rate of increase in the number of water connections was about 70 per annum.

In 1923-24, the Poona City Municipality launched the scheme of flushing privies in the city. This led to an increase in the number of water connections and also increased the utilization of water per connection. There was further increase in the number of water connections due to the extension of the city beyond the Sambhaji bridge to Bhamburda area. Thus, during the twenties and the early thirties, a rapid increase in the number of water connections took place due to the additions in the older parts and the provision of new lines in the newly developing areas. The number of connections was 4,071 in 1920; 5,339 in 1925; 6,755 in 1930; and 8,765 in 1936. The rate of increase in the number of water connections during the period 1919 to 1937 was about 300 per annum, which was considerably higher than the rate of increase observed during the earlier period, viz., 1880-1918. During 1936-37,⁵ it was noted that about 70 per cent of the houses in Poona had water connections. Within a period of about 25 years the percentage of houses with water connections increased from 30 to 70.

The number of water connections increased gradually during the forties, and in 1954,⁶ it was found that 91 per cent of the houses in the former Poona municipal area had water connections.

Utilization of water

If the intake of water per day is examined for the period 1880 to 1960, it is noted that in 1880 about 6,50,000 gallons of water was taken from Khadakwasla lake and an equal quantity from Katraj tanks. The intake of water increased gradually with the increase in the number of connections and it was about two million gallons per day in 1915-16, and 2.4 million gallons per day in 1920-21. With the implementation of sewerage scheme, the use of water increased substantially, and the daily intake rose to five million gallons in 1924-25 and six million gallons in 1928-29. Water utilization per head, per day, was about 23 gallons up to 1922, but increased to 38 gallons by 1928-29. The total intake continued to increase and reached nine million gallons in 1938-39 and the perhead utilization went up to 40 gallons. Water available

⁵ Gadgil, D. R., *Poona—A Socio-economic Survey*, Part II, Gokhale Institute of Politics and Economics, Poona, 1952, p. 138.

⁶ Sovani, N. V. et al, *Poona—A Resurvey*, Gokhale Institute of Politics and Economics, Poona, 1956, p. 368

per head declined gradually after 1942. In 1943-44 it was 36 gallons, in 1944-45, 33 gallons, and it went below 30 gallons by 1946. Decline in the availability of water per head was due to the rapid increase in the population of the city during the war and the post-war period. Even though the water supply per head remained around 30 gallons per day, the total water intake per day continued to increase. It was 12 million gallons during 1950-54, and varied from 15 to 16 million gallons thereafter.

With the continued expansion of the city, the inadequacy of water supply was becoming progressively severe. The paucity of water supply was particularly acute during summer. The Corporation was therefore pressing the government with a number of schemes such as building a high-level tank at Parvati or bringing water through pipes to avoid loss in transit. Certain ameliorative measures like construction of reservoirs to maintain water supply in high-level areas, enlargement of the size of pipes in areas like Bhavani and Sadashiv were taken up by the Corporation. However, augmentation of water supply was possible only by the construction of new sources of supply.

The Khadakwasla Project

The small storage at Khadakwasla was originally constructed to provide irrigation facilities and to meet the then small requirements of the Poona populace. However, the rapid expansion of the city and the introduction of sewerage facilities resulted in a progressive curtailment of irrigation water. In 1952, the water supply from Khadakwasla reservoir was distributed as follows: 29 per cent to Poona Municipal Corporation, 24 per cent to Poona and Kirkee Cantonments, four per cent to other customers, and 20 per cent for irrigation purposes. Twenty three per cent of the water was lost in transit. In view of the increasing inadequacy of water supply for agricultural purposes, the Deccan Agricultural Association, Poona, made several representations to Government of Bombay, requesting the Government to undertake a project which would leave large supply for irrigation even after satisfying the full requirements of the city.

Various schemes of augmenting the water supply for Poona city, and for irrigation purposes, were under consideration with the government since the turn of the last century. However, final decision was not reached. Three proposals were open for consideration, viz., (i) to build a new dam on the downstream side of Khadakwasla dam with a capacity of 15,000 m. cft.; (ii) to raise the height of the existing dam itself; and (iii) to construct two masonry dams one at Panshet and one at Warasgaon. In 1955, the proposal for constructing a new masonry dam on the down-stream side of the existing Khadakwasla dam was favoured. In the meanwhile, the experts of Central Water and Power Commission (CWPC) brought up a new proposal of building earthen dams at Panshet and at Warasgaon. They favoured earthen dams mainly on account of low costs. In August 1958, the Deccan Agricultural Association,

Poona, submitted to the Government a memorandum endorsing the desirability of masonry dams. They pointed out the suitability of masonry dams in the Deccan, because of the availability of requisite materials in the vicinity of dam-sites, requirements of relatively simple machinery, and greater and continuous employment potentialities.

The Government accepted the recommendations of CWPC with certain technical modifications and decided to build earthen dams at Panshet and at Warasgaon which are situated at a distance of about 24 miles south-west of Poona. The estimated low costs and possibility of securing benefits at an early date were put forth as reasons for accepting the above proposals. A saving of one crore rupees was expected if two earthen dams were built instead of constructing a masonry dam at Khadakwasla with a capacity of 15,000 m. cft.

The new scheme included construction of (i) earthen dam at Panshet with a capacity of 7,543 m. cft. ; (ii) earthen dam at Warasgaon with a capacity of 7,555 m. cft.; (iii) strengthening of Khadakwasla dam; and (iv) re-modelling the Right Bank Canal up to 68th mile and its extension to 100 miles⁷.

A provision of 400 lakh rupees was made for the Khadakwasla project in the Second Five-Year Plan. The estimated cost of Panshet Dam was approximately 275 lakh rupees. In order to achieve optimum utilization of water potential in the basin, and to provide adequate supply of irrigation water to scarcity areas, the Government decided to increase the storage capacity of Panshet reservoir to 11,000 m. cft. It was decided to complete the work of the total scheme in two stages. The first stage on which work was to begin during the period of the Second Five-Year Plan, included (i) the construction of Panshet Dam with a capacity of 11,000 m. cft. ; (ii) strengthening of Khadakwasla Dam ; (iii) construction of the canal with lining up to the end of the limits of Greater Poona; and (iv) construction of the canal without lining, up to the 79th⁸ mile.

Construction of Panshet Dam

According to the original plan the work of Panshet Dam was to be completed in five working-seasons, i. e. by May-June 1962, so that the actual benefits of irrigation became available in the *rabi* season of 1962. The main work involved in the construction of Panshet Dam was the earth-work of the embankment wall. The work of outlet, waste weir, etc., had to be taken up after the completion of the embankment wall up to a certain point. The total quantity of earth-work involved was 94 m. cft. During the first season (1957-58) 6.94 m. cft. of earth-work was completed, and excavation of temporary waste weir began. The earthen embankment wall was being constructed using only

⁷ Report of the Commission of Inquiry for enquiring into the failure of the Panshet and Khadakwasla dams, Part I, Government of Maharashtra, 1963, p. 19.

⁸ *Ibid.*, p. 20.

the ordinary earth-moving machinery and hence the speed of the work was slow. Considerable time had to be spent in loading and unloading the trucks, and the number of trucks in use was limited by the traffic conditions.

Attempts were therefore made in 1958 to assemble mechanical earth-moving equipment like tractors, scrapers, dumpers, etc., so that larger quantities of earth could be moved with a smaller number of vehicles and the speed of the work increased. Some old machinery, previously used at Gangapur and Kakrapara dams was brought to Panshet. However, this old machinery could be used only after frequent and expensive repairs. The total quantity of earth-work completed during the season 1958-59 was 22.84 m. cft.

Engineers from CWPC visited the dam-site in February 1959 and suggested the possibility of speeding up the work so that benefits could be made available earlier. Government explored the possibility of accelerating the programme of construction by one year. To achieve this purpose it was necessary to acquire additional earth-moving machinery and to complete the work on conduit and tower structures. It was considered possible to complete the appurtenance work in two seasons if the contracts for this work were let out by August or September 1959. It was therefore necessary to get ready, at an early date, the designs of conduit, tower, and such other items, which were being prepared by the Central Designs Organization (CDO, Bombay State). List of the additional machinery which had to be imported was drawn up in October 1959, and application for equivalent amount of foreign exchange (69 lakh rupees) was submitted to the Government of India through CWPC. It was considered necessary that the equipment be commissioned at the latest in October 1960 to achieve the target of completing the construction work by June 1961. Foreign exchange was released in February 1960, and the Indian Supply Mission, Washington, was approached to secure the equipment.

During the working-season 1959-60 it was possible to complete 20.22 m. cft. of earth-work which meant that 44 m. cft. of earth-work together with conduit, tower, etc. had to be completed only in one season.

The earth-moving machinery was brought into commission in January 1961 instead of October 1960, and the tenders for the construction of outlet-works were accepted only in the last season, i. e. 1960, instead of 1959. Up to the beginning of April 1961, a total of 80 m. cft. earth-work was completed and 14 m. cft. earth-work remained to be completed. The progress of the appurtenance work undertaken by the contractor proved to be unsatisfactory and hence a part of the work was withdrawn from him and taken up departmentally. The work of conduit was to be completed by 28th March but was nearly completed by 24th April. The work of concreting the floor of the conduit, so vital for ensuring smooth discharge of water, remained incomplete. The construction of tower also lagged behind but was speeded up after the adoption of a new technique.

The piers of the approach bridge were erected and trusses on two spans were kept. But the remaining trusses were not put with the result that no approach to the tower was possible. Had the approach bridge been completed, the hoisting arrangement might have been installed.

The hoisting arrangements were not installed in the tower with the result that the gates could not be operated. The stem rods were kept on the floor of the tower.

The emergency gates were not installed and the service gates were only kept suspended on wire ropes, leaving a two-foot gap at the bottom.

Pitching on the up-stream side to avoid wave-wash, was completed by the end of April, only for a part of the dam and that too not to the full height.⁹

The work planned to be completed in two seasons was thus rushed through with frantic hurry in one season, adding machines and men. Indeed, almost half the earth-work completed in the last season was raw and had no time to settle under wet conditions. The work of appurtenance, so vital to the proper working of the dam, was also carried out in great haste, and changes in design were not infrequent.

As regards strengthening the Khadakwasla dam, experts did not agree on the best method of strengthening and the proposals were still under consideration with the CDO in April 1961. The work of the canal which was to coincide with the work of the dam, lagged behind considerably and was carried out at a slow speed. The main aim, the completion of Panshet Dam, was only belatedly achieved.

The decision to impound water during the rainy season was taken in April 1961 as the work of the back-filling of the temporary waste weir commenced in April. Evidently, authorities hoped to complete the work before the onset of the monsoons. An element of risk was involved in this decision, as allowance was not made for the possibility of the advent of rains earlier than usual, or for abnormally heavy rains. The next crucial date and the last point of return was about 15th May by which date haunch filling and back filling were nearing completion. Certain major and a large number of minor works vital to the operation were still outstanding. A further race against time was indicated and undertaken. Comments of Dr. K. L. Rao regarding this decision are worth noting, "The work to be done is so vital and necessary for the safety of the dam that it is definitely not advisable to proceed with the work. This is not the type of work on which any calculated risk should have been taken. When it was not possible to complete all the work by the end of May, it was definitely necessary to modify the programme of construction."¹⁰

The service gates were not installed by the beginning of June. Yet the authorities were hopeful that hoisting arrangements could be made by 20th June

⁹ *Ibid.*, pp. 125-26.

¹⁰ *Ibid.*, p. 110.

1961. The decision to lower the gates was taken on 6th June, but on 14th June it became apparent that hoisting arrangements could not be completed. The decision of lowering the gates and leaving a two-foot gap was reviewed on the 14th and confirmed. An opening was kept below the gates so that lake should not get filled within a short time and could be depleted after the rainy season so as to complete the unfinished work.

Collapse of the dams

The rainy season set in in the second week of June. From 20th June torrential rains poured in the Panshet region. During a period of three weeks beginning from 21st June, 70 inches of rainfall was recorded in the catchment area. Rains never completely ceased up to the day of the collapse of the dam and the reservoir level went on rising continuously. In addition strong winds began to cause severe wave-wash.

Measures to stop damage due to wave-wash were first undertaken on 10th July by fixing up corrugated sheets and *murum* bags on the up-stream slope. At about 7 p. m. on 10th July, it was observed that water was flowing out of down-stream rock-toe above the conduit. On 11th July at about 2 a. m., appreciable sinking of a 30-foot section of the embankment above the conduit was noticed. The top of the embankment remained only one or two feet above the waves. From 5.30 a. m. work of laying sand bags on the sunken portion began. On the morning of 11th July, transverse cracks were noticed over the conduit trench edges and on the down-stream casing as well. After 11 a. m. on 11th July 1961, cracks appeared along the settled portion at right angles to the dam axis. At about 5.30 p.m. on the same day, two more cracks appeared at the top of the dam vertically above the trench sides.

Ever since the sinking was noticed at 2 a. m. on 11th July, people from the colony were asked to help in dumping *murum* bags to keep the embankment at a sufficient height from the water level. At noon on 11th July, officials discussed the consequences of the collapse of the dam and considered additional measures required to save the dam. As all the local labour was already employed the necessity of requesting help from the military was discussed. Thus the fact that the dam was in a serious danger was obvious by the morning of 11th July.

The work of putting *murum* bags was continued throughout the day. In the meantime, request for help was sent to the army headquarters. Army units began to arrive by 7 p. m. on the 11th July and were immediately put on the job. The army worked the whole night yet the situation gradually worsened and by 6.00 a. m. the army units were withdrawn as there was no longer even a remote possibility of saving the dam. At about 6.30 a. m. in the morning of 12th July the dam was over-topped. The torrent of water made a huge cut and swept away a 1200-foot portion of the embankment, and uprooted the conduit arch.

Water started gushing into the Khadakwasla reservoir and the gauge there started rising from about 8.30 a. m. The water level rose very rapidly and at 10.15 a. m. the parapet wall of the dam was over-topped. The water pressure continued to mount and by 1.15 p. m. part of the waste weir portion was sheared off. By 2.15 p. m. the middle portion of the dam was detached on account of the enormous water pressure and fell with a thud down-stream.

CHAPTER III

Estimates of Loss

EXTENSIVE AREAS along the banks of river Mutha suffered heavy damage in the Panshet catastrophe. A number of villages situated between Panshet and Poona city were devastated. Thousands of families lost their places of shelter as well as personal belongings and other property. The water supply of the city was totally cut off due to the collapse of both the Panshet and the Khadak-wasla dams. As electric and telephone lines were damaged the city plunged into darkness and was isolated. Heavy losses were inflicted upon the movable and immovable property of the Central Government, the State Government and the Poona Municipal Corporation. The whole range of public amenities like sewerage and water lines, roads and parks, schools and offices, hospitals and dispensaries, markets and bazaars, lay in ruins awaiting the enormous task of reconstruction.

All who visited the city immediately after the disaster were over-awed by the staggering losses of the city. An attempt is made in this chapter to estimate the loss suffered by the government and the semi-government agencies as well as the citizens of Poona, after carefully examining all the relevant sources and collecting information from a large number of agencies. It must be mentioned here that the methods followed by different agencies to estimate the amount of loss suffered varied, and hence the amounts might not be strictly additive. The total figure, however, would give an idea about the magnitude of the problem.

Panshet Dam

The total length of the embankment at Panshet was 2,400 ft. The portion of the embankment which was completed during 1961, i. e. the last season, was swept away by the torrent from its very base. The length of the ruined portion was about 1,200 ft. The rest of the portion of the dam developed huge cracks but did not collapse. The conduit arch and other appurtenance structures were destroyed. Worksheds and other structures at the dam-site collapsed involving a loss of 15,200 rupees. Heavy machinery and other equipment was greatly damaged. The estimated loss on this account was 2,25,000 rupees. For estimating the loss due to the collapse of Panshet Dam, one indicator could be the expenditure incurred on the construction of the dam till the end of June 1961, and the other, the expected cost of reconstructing the dam. About 200 lakhs of rupees were spent on the construction work of the dam till the end of June 1961. The estimated reconstruction cost of a masonry dam of similar capacity (11,000 m. cft.) was 544 lakh

rupees. The cost of reconstruction of the dam mainly earth-work and partly masonry work was estimated at 350 lakh rupees.

Khadakwasla Dam

The masonry dam at Khadakwasla was constructed during the eighteenth-seventies at a cost of 39 lakh rupees. The embankment at Khadakwasla breached at two places. In the centre, huge portion of the wall with a length of about 200 feet at the top was sheared off. In addition most of the 100 automatic and rolling gates on the northern side were destroyed. As the price of labour and materials has increased enormously during the last 80 years, it seemed advisable to note the reconstruction cost of the dam. The estimated reconstruction cost of a dam impounding 1,500 m. cft. of water was 426 lakh rupees. The cost of repairing and strengthening the existing dam was 150 lakh rupees. In a sense these figures indicate the magnitude of the loss.

The Central Government, the State Government and the Poona Municipal Corporation suffered extensive damage to their property. Information relating to the loss suffered by them was obtained from the respective departments. Attempts were made to obtain detailed breakdown of the total loss suffered. The figures of loss, as per estimates supplied by the various departments, are presented below.

Loss borne by the Central Government

The Central Water and Power Research Station, Government of India, is situated on the down-stream side of Khadakwasla dam, not far from the embankment itself. Some of the buildings of the Research Station located under the shadow of the dam were inundated and damaged. Demonstration models, flumes and a workshop were swept away. The estimated loss amounted to a lakh of rupees.

Post and Telegraph

Considerable damage was caused to telephone poles, wires and other equipment. For more than a fortnight after the disaster, telephones in the city were out of order. The estimated loss of the telegraph department was 2,35,000 rupees. A number of post offices, viz. those in Deccan Gymkhana, Shaniwar, Narayan and Mangalwar wards were fully under water. However, the buildings remained intact and the authorities apparently succeeded in removing to safety, most of the equipment, stationery and postage in these offices. The loss borne by this department was reported to be negligible.

Railway

Tenements provided to the labourers and porters by the Central

Railways, situated near the Sangam bridge, were affected in the disaster. Twenty-four one-room tenements out of 30 were damaged involving a loss of about 20,000 rupees.

Loss borne by the State Government

Granary : The state government granaries located near the old railway bridge were inundated by the invading waters. The granaries built in curved asbestos cement sheets were shattered and the stocks of food-grains were putrefied. It was reported that over 42,000 bags of grain were wasted, and the government suffered a loss of 15,64,807 rupees on this account.

Godowns : Godowns, stores and tin-sheds of the state government (Public Works Department) situated on Barne Road, Bombay-Poona road, and the neighbouring areas were submerged. Some of these godowns and sheds collapsed, and the material stored in them, such as cement sheets and timber, was either carried away by the torrent or else became useless. Equipment belonging to Public Health Department, Department of Agriculture and Soil Conservation and the Animal Husbandry was similarly affected. The details of loss to the state government property are presented in Table 3-1.

Table 3-1 : THE ESTIMATED LOSS OF THE VARIOUS DEPARTMENTS OF THE STATE GOVERNMENT

Government Department	Type of property affected			
	Buildings Rs.	Godowns Rs.	Equipment Rs.	Services Rs.
Collectorate, Poona	—	15,64,807	—	—
Buildings and Construction	—	6,08,746	22,04,555	20,900
Police	—	—	3,885	—
Agriculture and Soil Conservation	23,666	3,360	39,533	6,000
Public Health	—	—	32,000	—
Animal Husbandry	11,000	—	16,600	—
Total (Rs.)	34,666	21,76,913	22,96,573	26,900

The total loss suffered by the state government worked to 45,35,000 rupees. In addition two arches of Wellesley bridge which comes under the jurisdiction

of the state government collapsed and the bridge was out of use for over a year. The estimated loss on this account was about 4,00,000 rupees.

Loss borne by the Poona Municipal Corporation

The property of the Poona Municipal Corporation suffered the most extensive damage. The damaged property included sewerage and water lines, residential colonies, schools, bazaars, parks, bridges, roads and funeral grounds.

Sewers on the southern bank of the river running from the Omkareshwar temple to Shivaji bridge and beyond, were swept away involving a loss of 20,000 rupees. Sewers in other affected areas and manhole covers and chambers were also damaged involving a loss of 9,400 rupees.

Loss of a 14-inch waterline carrying water to Shivajinagar area, amounted to 30,000 rupees. Three-inch and four-inch waterlines in the affected parts of the city were also damaged. The total loss in this respect was 35,700 rupees. Water taps in the affected areas were damaged involving a loss of 3,000 rupees. In addition, the machinery in the pumping stations situated in Shivajinagar, Mangalwar, and Kasba wards and at Tanajiwadi went out of order. The damage caused was to the tune of 27,000 rupees.

Residential tenements built by the Corporation for the low-income and backward-class families, were heavily damaged in the Panshet disaster. Mang Colony situated in Shivajinagar ward with 72 single-room tenements was totally destroyed. Of the 14 single-storey chawls with 153 single-and double-room tenements located in Kasba ward, 10 were levelled down. The Mangalwar Colony of 73 single-room tenements was partly damaged. The estimated loss on account of destruction and damage to the Municipal colonies in Kasba ward was 2,50,000 rupees, in Shivajinagar ward was 75,000 rupees and in Mangalwar ward was 25,000 rupees.

The huge Corporation building located near the Shivaji bridge was inundated and the ground floor was completely under water. Considerable damage was inflicted upon the office-room together with furniture and fixtures, registers, stationery and other equipment. The total estimated loss of the Corporation building and the equipment was 75,000 rupees. Moreover, the loss suffered in terms of damage or destruction of the records was almost irreparable. Important records like the assessment registers, birth and death registers, property registers became illegible. The loss of information without which so much of our administrative and judicial machinery is usually baulked indicates a real suffering in terms of time and vexation for the Poona citizenry.

Buildings and equipment of three primary schools run by the Corporation were damaged involving a loss of about 15,000 rupees. The quarters of Garden Superintendent located in Shivaji Park collapsed, resulting in a loss of about 20,000 rupees. A library and a clinic run by the Corporation, two cattle pens and two watchmen's quarters were damaged. The total loss on this account was 29,300 rupees.

Shivaji Park and the swimming pool adjoining the Park were totally des-

troyed, involving a loss of 25,600 rupees. The adjacent open-air theatre and the wrestling ground suffered the same fate, involving a loss of 42,500 rupees. In Sambhaji Park extensive damage was inflicted upon the aquarium, bandstand building, statues and plants. The total loss on this account was estimated at 49,400 rupees.

Sambhaji bridge and the Old Railway bridge suffered enormous damage; their parapet walls, railings and footpaths were damaged involving a loss of about 1,00,000 rupees. The estimated loss on account of the destruction of the road-surfaces of these two bridges was 2,50,000 rupees. Shivaji bridge, on the other hand, was less damaged; the parapet walls and the side-walks were broken but its road-surface remained more or less intact. Considerable damage was also caused to the side bridge off the Shivaji bridge. The total loss involved in this respect was estimated at 50,000 rupees. The Omkareshwar causeway was destroyed and other causeways suffered some damage, involving in all a loss of 20,000 rupees.

Some of the main roads and avenues in the city, like Kelkar road, Congress House street, a part of Shivaji road, Tilak and Sambhaji squares, were considerably damaged. Reported loss on this account was 2,70,000 rupees. Damage to rain-water gutters resulted in a loss of 35,000 rupees.

A large number of sanitary blocks located in the affected areas, Hindu funeral grounds, three vegetable and fish markets also suffered considerable damage. Garbage boxes, sign posts, and street lights, were destroyed at many places. The loss involved on this account was estimated at 1,05,700 rupees. The details of loss to Municipal property are presented in Table 3·2.

Table 3·2 : THE ESTIMATES OF LOSS BORNE BY THE POONA MUNICIPAL CORPORATION

<i>Type of damaged property</i>	<i>Estimated loss (Rs.)</i>	<i>Per cent of loss</i>
Sewerage	29,400	1·9
Water lines	68,700	4·4
Pumping stations	27,000	1·7
Residential colonies	3,50,000	22·4
Schools and other buildings	1,39,300	8·9
Theatre and parks	1,17,500	7·5
Bridges and causeways	4,20,000	26·9
Roads and gutters	3,05,000	19·5
Miscellaneous	1,05,700	6·8
Total	15,62,600	100·0

Loss borne by the Poona Electric Supply Company

The main supply lines running over the Sangam bridge and the Old Railway bridge were heavily damaged. Electric poles along the roads in the inundated parts were twisted and at places uprooted, and huge coils of wire lay buried in the mud. It was estimated that the Poona Electric Supply Company suffered a loss of about three and a half lakhs of rupees in terms of electric equipment and other property.

Loss to industrial and commercial establishments

Many small industrial establishments situated near the banks of the river and a large number of commercial establishments in the affected parts of the city suffered heavy losses. Information regarding the loss borne by factories, workshops, shops and other businesses was collected from a number of bodies such as Maharashtra Chamber of Commerce and Industries, representative associations of traders, commercial banks and the C. M. Fund Committee. Individual shop-keepers and businessmen were also contacted whenever necessary.

Loss borne by factories and workshops

The affected industrial establishments included workshops and foundries, metal works, manufacturers of spare parts, chemicals, electrical appliances and accessories, hosiery and ready-made clothes, *bidi* and incense sticks. These establishments were situated mainly near the Wellesley bridge, the Shivaji bridge, and in Erandawana ward and came under the fury of rising waters which led to a serious loss of raw materials, finished goods, tools and machinery, and damage to buildings and premises.

The Maharashtra Chamber of Commerce and Industries, Poona, collected information relating to loss suffered by the industrial establishments. The necessary information was obtained from the Chamber and scrutinized. In case the information was inadequate, enquiries were carried out to fill the gaps. The distribution of affected units, according to the magnitude of loss and the type of industry, are presented in Table 3.3.

Out of the total 115 affected industrial establishments, the largest single group was of metal and engineering works. Manufacturers of furniture, of precision instruments, and of chemicals were the other major categories among the affected units. In the other groups, viz., soap factory, leather works, *bidi* works, *agarbatti* works, etc., there were two to five units each.

The average amount of loss borne by different industrial units and the division of total loss into three constituents, viz., premises, machinery and material are given in Table 3.4. Manufacturers of medicines and drugs reported the highest average loss among all the affected industrial establishments. However, out of five affected units in this category, only one unit manufacturing indige-

Table 3-3 : DISTRIBUTION OF AFFECTED INDUSTRIAL ESTABLISHMENTS ACCORDING TO TYPE AND TOTAL AMOUNT OF LOSS

Type of industrial establishment	Total amount of loss (Rs.)							Total
	1001- 2000	2001- 5000	5001- 10000	10001- 20000	20001- 50000	50001- 100000	100001 and above	
Manufacturers of :								
Metal products	3	7	5	7	2	3	3	30
Electric goods	—	—	—	3	1	1	—	5
Precision instruments	—	2	4	1	3	—	—	10
Chemicals	—	—	3	3	1	—	—	7
Medicines and drugs	1	—	2	—	—	1	1	5
Soap	—	—	—	—	2	—	—	2
Knitwear and mattresses	—	—	1	—	4	1	1	7
Stationery	—	—	—	1	1	—	—	2
Furniture	5	2	1	3	—	3	—	14
Leather goods	—	—	—	—	1	1	—	2
Bidi and Agarbatti	—	1	1	1	—	1	1	5
Building-material	—	—	1	2	1	1	—	5
Miscellaneous goods	8	5	6	2	—	—	—	21
Total	17	17	24	23	16	12	6	115

Table 3-4 : AVERAGE AMOUNT OF LOSS BORNE BY THE INDUSTRIAL ESTABLISHMENTS

Type of industrial establishment	Total number of affected units	Percentage of loss on account of damage to			Average amount of loss per unit (Rs.)
		Premises	Machinery	Material	
Manufacturers of :					
Metal products	30	14.1	20.6	65.3	42470
Electric goods	5	4.6	23.7	71.7	31562
Precision instruments	10	11.9	42.7	45.4	12522
Chemicals	7	3.3	13.8	82.9	15821
Medicines and drugs	5	5.3	15.7	79.0	137880
Soap	2	25.9	17.5	56.6	27081
Knitwear and mattresses	7	17.5	32.4	50.1	88071
Stationery	2	2.8	27.8	69.4	17275
Furniture	14	24.6	7.7	67.7	20317
Leather goods	2	2.0	10.7	87.3	50628
<i>Bidi and Agarbatti</i>	5	9.4	4.7	85.9	69221
Building-material	5	2.0	6.8	91.2	35400
Miscellaneous goods	21	11.4	13.5	75.1	4924
Total	115	12.5	18.5	69.0	35432

genous medicines, accounted for about 90% of the total estimated loss of this category. Excluding this unit, which reported a loss above six lakh rupees, the average loss for this category came to 16,000 rupees only. Similar was the case of knitwear and mattresses and *bidi* and *agarbatti* works. One manufacturer of knitwear reported a loss of about four lakh rupees and one *bidi* works reported losses exceeding rupees two lakhs and a half. Excluding these units, the average loss for knitwear factories worked to 36,000 rupees and for *bidi* and *agarbatti* works came to 20,000 rupees.

Among metal works and engineering units, loss of three units amounted to 8.4 lakh rupees. If these cases are excluded the average loss came to 16,000 rupees. In the category of miscellaneous units the average loss was only about 5,000 rupees. This category included small establishments like producers of ink, confectionary, aerated waters, perfumes, etc., whose losses were below 10,000 rupees in all the cases barring two.

The estimated total loss of all the industrial establishments amounted to 40,74,700 rupees, half of which was accounted for by the six bigger units. The average loss including these six units was 35,432 rupees, and excluding them, 18,000 rupees.

The loss of raw material constituted about 70 per cent of the total loss suffered by the factories and workshops, while loss on account of damage to the machinery and to the premises accounted for 18.5 per cent and 12.5 per cent of the total loss, respectively.

Loss to the premises was the heaviest in the case of units manufacturing soap and furniture, as they were housed mainly in temporary wooden or tin sheds which were totally destroyed. The proportionate share of loss on account of damage to machinery was the highest in the case of manufacturers of precision instruments. Loss of raw materials and stores was comparatively higher in units engaged in manufacturing chemicals, medicines, *bidi*, lime, *agarbatti*, etc.

Loss borne by printers and publishers

Damage to the printing machinery, to the stocks of printing-papers and in some cases to the premises was the plight of the printers and publishers. Thirty-one printers and publishers suffered directly incurring a total loss of 11,09,500 rupees. Their distribution according to losses sustained by them is given in Table 3.5.

Moreover, there were 44 other printers and publishers who suffered indirectly. They lost their stocks of paper and other material worth 5,36,000 rupees stored in the printing presses which were inundated. This brought the total estimated loss of printers and publishers to 16,45,500 rupees.

Loss to flour mills

Eighty-eight flour mills, scattered in the different affected wards of the city, suffered damage to their buildings and machinery. As most of the units were

Table 3.5 : DISTRIBUTION OF PRINTING AND PUBLISHING UNITS, ACCORDING TO LOSSES SUFFERED

<i>Estimated loss</i> (Rs.)	<i>No. of affected units</i>
0 — 5000	14
5,001 — 10,000	5
10,001 — 15,000	2
15,001 — 20,000	1
20,001 — 25,000	2
25,001 — 50,000	1
50,001 — 1,00,000	3
Above 1 lakh	3
Total	31

of small size their estimated loss varied between 1,000 and 3,000 rupees. Only two big units showed a loss exceeding 40,000 rupees each. The estimated total loss of flour mills amounted to 2,00,600 rupees.

Loss to commercial establishments

A large number of shops dealing in a variety of articles, situated within two furlongs of the river, were naturally inundated. Clusters of shops in the Deccan Gymkhana area near the northern end of Sambhaji bridge, those near Tilak square at the southern end of Sambhaji bridge and those near the northern end of Shivaji bridge, particularly, suffered heavy damage. It is estimated that about 3,600 shops incurred losses during the disaster. Luckily, the main business locality of the city is situated in the central part of the city at a considerable distance from the river and remained almost entirely unaffected.

Information regarding a part of the affected shops was available through Mahratta Chamber of Commerce and Industries, associations of merchants and commercial and co-operative banks. For estimating the total number of affected shops it was necessary to use some supplementary data. For this purpose the register of shops and establishments maintained by the Poona Municipal Corporation was referred to. Information relating to place and nature of business, number of employees, was noted from the register for the shops and establishments located at the affected house numbers. The list of affected house numbers, prepared during the house-to-house survey conducted by the Institute in December 1961, was used for this purpose. In case of doubt the information collected from the municipal records was verified by on-the-spot visits. In addition random checks were carried out in five

per cent of the cases. Even with these checks, possibility of a few omissions or commissions cannot be overruled.

The distribution of the affected shops, according to location, type of trade and the size, is given in Table 3·6. The shops are grouped into six categories on the basis of the nature of commodities dealt in. The first category includes grocers; the second covers general merchants, dealers in cloth, hosiery, stationery, fancy articles, watches, spare parts and other durable consumer goods. The dealers in edibles, viz., vegetable and fruit vendors, tobacconists, sweetmeat dealers are grouped into the third category. The fourth group comprises of all the service trades, viz., barber, washerman, tailor, etc. Firewood and coal merchants form the fifth group and the last group comprises of other traders like dealers in cotton-seed, hay, rags which are not covered by the first five groups. The shops are further divided into two classes, viz., big and small, on the basis of the number of paid assistants engaged in the shop. Shops with none or one paid employee are considered as small shops, and those with two or more paid employees are termed as big shops.

The estimated number of the total affected shops was 3,586 of which 2,698 were small and 888 were big. The highest number of affected shops was located in Kasba ward (about 20% per cent) whereas in each of the other wards, viz., Mangalwar, Somwar, Narayan, about 10 to 12 per cent of the affected shops were situated.

For preparing the estimates of loss suffered by the shop-keepers, information collected by the associations of merchants, zonal committees and the banks was used. Itemized information about loss was available for 193 grocers, 116 owners of restaurants and sweetmeat shops, 18 stationery and cutlery merchants and four pharmaceutical merchants, from their respective associations. The Deccan Gymkhana zonal committee and the Mahratta Chamber of Commerce and Industries and the commercial & co-operative banks supplied information regarding the losses of 217 and 147 and 700 traders respectively. The information collected from the various sources was scrutinized and overlapping cases were taken off. Distribution of the affected shops according to the loss estimated on the basis of the above information was obtained and is presented in Table 3·7. Large variations are noted in the total amount of loss suffered by the different types of shops. While the lowest amount was Rs. 200, the highest was around Rs. 50,000. About 40 per cent of the shops reported a loss below 1,000 rupees.

The number of affected shops together with the figures of average loss are given in Table 3·8 according to category and the size of the shop. In the case of small shops, the heaviest losses were shown by furniture-makers and stationery-dealers. Radio and watch dealers reported the highest loss among the big shops. Large differences were evident in the average losses of big and small shops particularly in the case of grocery, cloth, radio and watch, and tailoring shops. The small cloth-dealers showed a loss of 2,000 while the big dealers showed an average loss of 11,950 rupees. For small shops as a whole the average

Table 3-6 : DISTRIBUTION OF AFFECTED SHOPS ACCORDING TO LOCATION AND TYPE OF BUSINESS

Ward	Size	Type of business						Total
		Grocery	Durables	Edibles	Services	Fuel	Miscellaneous	
Mangalwar	Small	59	35	111	47	30	21	303
	Big	35	15	43	12	12	2	119
Somwar	Small	35	44	84	67	39	8	277
	Big	18	8	28	27	19	—	100
Kasba	Small	131	141	169	135	45	17	638
	Big	58	27	52	28	25	—	190
Other eastern wards §	Small	38	51	59	58	16	5	227
	Big	11	9	18	17	4	—	59
Shaniwar	Small	32	35	106	46	21	15	255
	Big	21	9	22	18	14	—	84
Narayan	Small	35	60	130	57	19	12	313
	Big	17	32	36	20	4	—	109
Sadashiv	Small	25	16	42	23	9	4	119
	Big	10	10	6	10	1	—	37
Shivajinagar, Erandawana	Small	40	76	150	39	21	38	364
	Big	19	28	68	29	6	9	159
Suburbun Area *	Small	44	27	62	46	13	10	202
	Big	14	7	5	4	1	—	31
Total	Small	439	485	913	518	213	130	2698
	Big	203	145	278	165	86	11	888

§ Raviwar, Budhwar, Ganesh, Nagesh, Nana.

* Yeravada, Mundbava, Suburban Roads and *Wadis*, Ghorpadi, Dhanori.

Table 3-7 : PERCENTAGE DISTRIBUTION OF SHOPS ACCORDING TO TYPE OF BUSINESS AND AMOUNT OF LOSS

Total amount of loss (Rs.)	Type of business					
	Grocery	Durables	Edibles	Services	Fuel	Miscellaneous
	Percentage of shops					
200 — 1,000	38.6	42.1	49.6	36.1	29.5	54.1
1,001 — 2,000	18.8	8.3	16.2	24.5	32.6	22.6
2,001 — 4,000	14.9	22.8	24.1	21.4	23.9	13.7
4,001 — 6,000	14.9	15.9	3.5	13.5	4.5	2.0
6,001 — 10,000	6.6	4.1	3.1	2.5	4.3	3.8
10,001 — 20,000	3.1	2.7	2.3	1.3	2.5	1.9
20,001 — 30,000	2.4	2.1	0.7	0.7	1.5	1.0
30,001 — 50,000	0.5	1.6	0.5	—	1.2	0.9
50,001 and more	0.2	0.4	—	—	—	—
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table 3·8 : AVERAGE AMOUNT OF LOSS BORNE BY SHOPS IN DIFFERENT TYPES OF BUSINESS

Type of business	Small shops		Big shops		All shops	
	Number of shops	Average loss (Rs.)	Number of shops	Average loss (Rs.)	Number of shops	Average loss (Rs.)
Grocery	439	1740	203	7385	642	3525
Cloth, hosiery	120	2000	21	11950	141	3482
Stationery	76	2780	15	6540	91	3400
Cycle, motor repairs	171	1870	58	7125	229	3201
Radio, watches	118	1460	51	15130	169	5585
Restaurant	80	1940	119	9055	199	6195
Bread & pastry, sweetmeat	106	1500	33	5285	139	2399
Vegetables, fruit	198	440	41	4375	239	1115
Pan, tobacco	263	700	50	4205	313	1260
Milk and milk products	266	600	35	4680	301	1074
Hair cutting saloon	107	1630	48	3060	155	2073
Laundry	97	2075	37	7000	134	3435
Tailoring shop	230	1680	54	8200	284	2920
Leather goods	34	500	12	6510	46	2067
Gold & silver ware	39	2000	8	4790	47	2475
Furniture	11	2800	6	7215	17	4358
Fuel	213	2000	86	7400	299	3553
Miscellaneous	130	1746	11	4066	141	1927
All shops total	2698	1480	888	7351	3586	2934

loss was 1,480 rupees while for big shops it was 7,351 rupees. The total estimated loss for all the 3,586 affected shop-keepers amounted to 1.05 crore rupees.

The total loss suffered by the shop-keepers can be sub-divided into loss to premises, to furniture and fixtures and to stocks of material and the loss on account of destruction of the records covering dealings in credit and account books. In the case of grocers, 30 per cent of the affected traders reported damage to their premises. Of the total loss borne by the grocers, 66 per cent was on account of loss of stocks, 10 per cent due to damages to premises and furniture, and bad debts accounted for the remaining 24 per cent of the total loss.

In the case of shops dealing in cloth, fancy goods and luxury articles, loss to stocks formed about 85 per cent of the total loss, 10 per cent of the loss was due to damage to furniture and fixtures, and only five per cent was on account of bad debts as these shops carried very little business on credit. In the case of restaurants 40 per cent of the loss consisted of loss to chinaware, crockery and fixtures, and the rest was due to the loss of raw material. Stocks again, formed an important element in the loss of firewood depots. Many of them lost their premises also. Details of loss were not available for the shops providing various services.

Loss to other establishments

In the case of bigger establishments like cinema houses, bank offices, petrol pumps, the necessary information was obtained through interviews as the number of affected units was small. For smaller establishments, the procedure followed was similar to that used for estimating the number and the amount of loss in the case of traders.

Larger establishments

In all six cinema auditoria suffered; three of them were located near the river, two in Deccan Gymkhana area and one in Narayan Peth. Though the buildings of cinema houses withstood the water pressure, internal decoration and fittings, furniture and upholstery, electric fittings and fans, glass panes, projection machinery, loud-speakers, etc., were considerably damaged. The total estimated loss of the affected theatres was 6,31,000 rupees, the average being 1,05,000 rupees. Itemwise information of loss was available in the case of four theatres. (See Table 3.9).

Table 3.9 : PERCENTAGE OF LOSS ACCORDING TO ITEM : THEATRES

	<i>Premises</i>	<i>Machinery</i>	<i>Furniture</i>	<i>Electric fittings</i>	<i>Luxury articles</i>
Per cent of loss	15.7	3.0	42.1	24.3	14.9

Most of the bank headquarters and offices are situated in the central part of the city. However, three prominent banks suffered due to damage to their

Deccan Gymkhana branches, the total estimated amount of loss being 39,200 rupees. The details of estimated loss are given in Table 3-10.

Table 3-10 : PERCENTAGE OF LOSS ACCORDING TO ITEM : BANKS

	<i>Furniture</i>	<i>Electric fittings</i>	<i>Stationery</i>	<i>Record</i>
Per cent of loss	47.3	6.7	29.4	16.6

Three petrol stations, two in Deccan Gymkhana area and one near Shivaji bridge were affected; their total estimated loss was 6,500 rupees. Four petrol and service stations, one located near the Shivaji bridge and the other three along Jangali Maharaj road, had to bear considerable loss. The total reported loss was 1,31,800 rupees. The itemwise breakdown is shown in Table 3-11.

Table 3-11 : PERCENTAGE OF LOSS ACCORDING TO ITEM : PETROL AND SERVICE STATIONS

	<i>Premises</i>	<i>Machinery</i>	<i>Cars</i>	<i>Petrol & oil</i>
Per cent of loss	14.8	59.6	20.8	4.8

A number of private hospitals and maternity homes were among the worst sufferers. They were mainly located along Jangali Maharaj road, Laxmi road and Tilak road. The hospital staff had a trying time moving the bed-ridden patients to safe places. Fortunately they succeeded in saving human lives though not the hospital property and equipment. The items of loss included: x-ray plant and plates, dental surgery plant, surgical instruments, drugs and medicines, mattresses and linen, electric fitting and furniture. Major affected hospitals were visited and the necessary information could be obtained from seven out of ten. The average loss for the seven hospitals came to 18,300 rupees which was used to derive the total loss for this group. The estimated total loss worked to 1,83,000 rupees. In the case of five affected hospitals it was possible to obtain itemized breakdown of the loss. (see Table 3-12).

Table 3-12 : PERCENTAGE OF LOSS ACCORDING TO ITEM : HOSPITALS

	<i>Premises</i>	<i>Plant</i>	<i>Equipment</i>	<i>Medicine</i>	<i>Linen</i>
Per cent of loss	25.6	12.3	11.4	42.9	7.8

Small establishments :

The estimate of the number of small establishments was arrived at with

the help of the register of shops and establishment, maintained by the Poona Municipal Corporation, while the estimates of total loss were derived on the basis of information available through banks, zonal committee, and Mahratta Chamber of Commerce and Industries.

Wardwise distributions of these affected small establishments together with the estimates of loss are given in Table 3-13.

Table 3-13 : DISTRIBUTION OF SMALL ESTABLISHMENTS ACCORDING TO TYPE AND LOCATION

Location	Type of establishment				
	Medical practitioner	Agent	Lawyer	Moneylender	Contractor
Mangalwar	5	—	1	4	—
Kasba	28	9	24	10	8
Somwar and other eastern wards	22	6	9	9	2
Shaniwar	11	7	10	2	4
Narayan, Sadasbiv	27	7	7	1	8
Shivajinagar, Erandawana and Suburban area	36	4	27	2	6
Total	129	33	78	28	28
Average loss (Rs.)	2800	2600	1200		9600

The biggest single group is of medical practitioners (129). Their dispensaries were inundated leading to the loss of drugs and medicine and damage to the equipment and furniture. Agents of pharmaceutical companies, canvassers of cosmetics, oil, etc., lost most of the stock in their possession. The average loss of these two groups was 2,800 rupees and 2,600 rupees respectively. Lawyers and moneylenders suffered mainly in terms of loss of documents; the amount of average loss in their case was 1,200 rupees. The amount of loss was the highest in the case of contractors, (Rs. 9,600) because their godowns, where cement, timber and other material were stored, were inundated.

In addition, there were 21 lodging houses and 15 marriage halls which reported damage to their premises, furnitures and fixtures. Their total estimated loss was about 86,400 rupees.

It may be noted here that in the case of certain types of businesses, viz., booksellers, chemists, dealers in electric appliances, sewing machines, scooters, spare-parts etc., the damaged stock was wholly or partly restored by the manufacturers wherever it was possible for the dealers to salvage and send the dama-

ged goods to the manufacturers. A part of the loss inflicted upon the traders and other dealers was thus transferred to and borne by the manufacturers.

Loss borne by artisans

Information about the nature and the amount of loss sustained by the artisans was obtained from the aid-application forms submitted by them to the C. M. Fund Committee. A large number of artisans were living in colonies or huts along the banks of the river Mutha. Rope-makers were found in Mang Colony in Shivajinagar; broom and brush-makers and tin-smiths in Tofkhana area, Shivajinagar; a large number of masons were living in Mangalwar Peth Municipal colony and brass-smiths and copper-smiths in Kasba ward. On the other hand, carpenters, barbers, washermen, cobblers and tailors were not concentrated in any single locality, but were scattered over different parts of the city. The percentage distribution of affected artisans according to location is given in Table 3-14.

Table 3-14 : PERCENTAGE DISTRIBUTION OF AFFECTED ARTISANS ACCORDING TO LOCATION

<i>Ward</i>	<i>Percentage of artisans</i>
Mangalwar	17.7
Somwar	1.1
Kasba	21.6
Other eastern wards	5.0
Shaniwar	4.8
Narayan	9.8
Sadashiv	2.8
Shivajinagar, Erandawana	33.1
Suburban area	4.1

The number of affected artisans together with the figures of average loss according to category are presented in Table 3-15. In certain trades like broom-making, carpentry, tailoring, and leather-work, there were as many as three to four hundred affected artisans. The number was also considerable in the case of rope-makers, launderers, barbers, blacksmiths, and masons. The average loss borne by the artisans ranged from 49 to 321 rupees, the least being noted in the case of broom-makers and the highest in the case of launderers. The average loss for all the artisans came to 146.61 rupees. This average is based on 3329 cases for which information relating to the total loss was available. When the above average was applied to the total number of affected artisans (viz, 3540) the total loss worked to 519,000 rupees; 63 per cent of the total loss was on account of loss of implements and 37 per cent due to the loss of raw material and finished goods.

Twenty rickshaw- and tonga-drivers were also affected. Most of the affected tonga-drivers had their stables in Kasba ward. These were damaged considerably. The fodder stored in the stables was swept away and the vehicles damaged. The affected rickshaw-drivers resided mainly in Kasba and Sadashiv wards. They suffered because of the damage to their vehicles. The total estimated loss of rickshaw- and tonga-drivers was 48,000 rupees, the average loss being 2,400 rupees.

Table 3-15 : AVERAGE AMOUNT OF LOSS BORNE BY THE ARTISANS

Type of work	No. of artisans	Average loss Rs.	Percentage of loss on account of damage to	
			Implements	Material
Broom-making	456	49	48·5	51·5
Rope-making	256	126	21·0	79·0
Making of fishing nets	100	219	70·6	29·4
Masonry	219	78	90·7	9·3
Wiring, painting, etc.	95	140	64·9	35·1
Carpentry	343	147	70·6	29·4
Pottery	78	146	51·1	48·9
Blacksmithy	186	104	49·3	50·7
Hair-cutting	153	134	94·1	5·9
Laundering	141	321	81·0	19·0
Leather-work	340	113	51·9	48·2
Tailoring	368	173	78·1	21·9
Coppersmithy	105	97	64·6	35·5
Dairying	87	268	61·2	38·9
Preparing edibles	24	293	85·4	14·6
Repairing stove, locks etc.	278	294	66·0	34·0
Book-binding	17	50	67·5	32·5
Making of paper-goods	14	133	45·0	55·0
Miscellaneous	69	107	68·1	31·9
All artisans	3329	147	62·8	37·2

It was estimated that about 78 hawkers, e. g., dealers in fruit and vegetables, nuts, sweets and other edibles, toys and bangles, etc., were affected in the Panshet disaster. Their residences were scattered all over the affected parts of the city. Their total estimated loss was 75,500 rupees, the average being 770 rupees.

The information relating to the total loss borne by the industry, business establishments and commercial concerns, artisans and the like is summarised in Table 3-16 for ready reference.

Table 3.16 : AMOUNT OF LOSS BORNE BY INDUSTRY AND COMMERCE

<i>Type of business</i>	<i>Number of units</i>	<i>Total loss (Rs.)</i>	<i>Percentage of units</i>	<i>Percentage of loss</i>
Industrial establishments	115	40,74,700	1.46	21.43
Printers and publishers	75	16,45,500	0.95	8.66
Flour-mills	88	2,00,600	1.12	1.06
Shops	3,586	1,05,20,000	45.62	55.35
Theatres	6	6,31,000	0.08	3.32
Banks	3	39,200	0.04	0.21
Petrol stations	6	1,38,300	0.08	0.73
Hospitals	10	1,83,000	0.13	0.96
Medical practitioners	129	3,61,200	1.64	1.90
Agents	34	88,400	0.43	0.47
Contractors	28	2,68,800	0.36	1.41
Lawyers and moneylenders	106	1,27,200	1.35	0.67
Marriage halls and lodging houses	36	86,400	0.46	0.45
Artisans	3,540	5,19,000	45.04	2.73
Hawkers	78	75,500	0.99	0.40
Rickshaw-and tonga- drivers	20	48,000	0.25	0.25
Total	7,860	1,90,06,800	100.00	100.00

The estimates of loss given above do not include the loss consequent upon the closure of the business after the disaster. Most of the affected units could not recommence the routine work nearly for a month after the disaster. It was necessary to repair the premises, restore the machinery and replenish the stocks. Some were even compelled to find an entirely new place of business. Overhead costs continued to be borne by them during this period. Some of the dealers, particularly those who had to change their place of business, suffered on account of loss of their clientele. However, it was not possible to take into account indirect losses while preparing the estimates of loss.

Loss to institutions

The affected institutions included a college, some schools, research institutes educational and cultural foundations, a charity hospital, rescue homes, libraries, art societies, physical culture institutes, gymnasia, coaching classes, etc. The details of their losses were obtained from the application forms available with the C. M. Fund Committee. For the purpose of the number of affected institutions the Property Inspection Boons of its maintained by the Poonā Municipal Corporation was referred to, and the information for the affected house numbers was taken down.

Educational institutes

Nine secondary schools, and a college suffered extensive damage in the Panshet calamity. Fortunately the children were asked to leave the school at the first indication of the danger and no cases of loss of life in the school were reported. However, the school buildings, together with the furniture and fixtures, books and laboratory equipment were heavily damaged. The college reported a loss of nearly two lakh rupees. Among the schools, five reported a loss between rupees 5,000 and 25,000. Loss of three schools varied between rupees 25,000 and 50,000 and in one case it exceeded 50,000 rupees. The total loss of these 10 institutions amounted to 4,14,900 rupees.

The itemized breakdown of the loss suffered by four prominent schools, each with a total loss between rupees 25,000 and 75,000 is set out in Table 3-17.

Table 3-17 : PERCENTAGE OF LOSS ACCORDING TO ITEM : SCHOOLS

	<i>Premises</i>	<i>Building</i>	<i>Furniture</i>	<i>Equipment</i>	<i>Books</i>	<i>Stationery</i>	<i>Total and sundry</i>
Per cent of loss	10·8	19·3	8·0	20·6	30·1	11·2	100·0

Some well-known educational and cultural institutions sustained heavy losses. Two private libraries with rare and valuable collections of indigenous and foreign books suffered damage which is irreparable. Two educational and cultural foundations reported similar losses to their collections of books, publications and research divisions. One research institution and a commercial school reported damage to premises, equipment and books. The reported loss of each of these six institutions was above one lakh, the total for all the six institutions being 6,33,700 rupees. Eighty per cent of the total loss was on account of damage to books and documents and 20 per cent due to damage to equipment, furniture and fixtures.

The affected institutes also included two women's and children's rescue homes and one asylum for invalids. The rescue homes situated in Narayan, Sadashiv and Erandawana wards came under the full force of the torrent. The total estimated loss of these institutes was 45,300 rupees.

The Mangalwar Charity Hospital had to bear extensive loss. The water entered its premises through the nearby stream causing heavy damage to the capital equipment and stores. The total estimated loss was over 1,00,000 rupees.

A large number of coaching classes, unrecognized and recognized primary nursery schools scattered in different parts of the city, suffered in the disaster. As all these units were small their estimated loss generally varied between rupees 500 and 1,000, the average loss being 660 rupees. Only five establish-

ments reported loss exceeding 2,000 rupees. The total number of affected small schools, coaching classes and montessori schools was 87 and their total estimated loss 76,000 rupees.

Gymnasia and sports clubs also reported damages to their property. All except four of these units were small and their individual loss varied between rupees 200 and 500; the average loss being 330 rupees. The five bigger establishments reported on an average individual loss of about 3,800 rupees. The total number of affected gymnasia and clubs was 50 and their total estimated loss was 34,300 rupees.

Seven other institutions like those promoting sale of *khadi* and handicrafts, suffered, in all, a loss of 74,400 rupees. Six drama and music circles reported an estimated total loss of 12,000 rupees. Four technical institutions reported a total loss of 13,800 rupees. One prominent physical culture institute suffered extensive damage to its premises, gymnasium, play-ground and sport equipment, and reported a loss of about 12,000 rupees. Lastly, an office of a political party suffered a loss of about 9,000 rupees in the form of damage to records, stationery and furniture. The estimated total loss of these 19 institutions was 1,21,200 rupees.

The total estimated loss of all types of institutions, viz., schools, hospitals, rescue homes, gymnasia, etc. came to 14,28,400 rupees.

Loss to temples and mosques

The river banks in Indian cities and villages are generally embellished with Hindu temples and *ghats*. In Poona, a number of ancient and well-known temples were located along the river banks. It was the unfortunate fate of these ancient temples to fall a prey to the ferocious torrent.

The Vitthal temple near Sambhaji bridge was swept away with the torrent. The Omkareshwar temple, built sometimes between 1740 and 1760, remains a greatly venerated Hindu shrine. Its fortified outer walls built in Saracenic style, the porticos, the solidly built rock lamp-tower, and the massive stone image of the bullock-god, were uprooted, leading to a loss of about 40,000 rupees. The Vriddheshwar and Siddheshwar temples on the northern bank opposite Omkareshwar temple, were damaged considerably. Their estimated loss exceeded one lakh rupees. The Amriteshwar temple near Shaniwar Wada built in 1749 was also damaged. The temples near Wellesley bridge were extensively damaged, involving a loss of about 66,000 rupees.

About 70 smaller temples situated along the river banks and in the affected parts of the city suffered damage to varying extent. The number of affected temples together with their estimated loss is given in Table 3-18.

Reference may also be made here to the damage to Shaniwar Wada, a prominent historical attraction of the city. Western and southern sections of its huge fortifications were damaged by the force of the turbulent waters.

Table 3-18 : DISTRIBUTION OF AFFECTED TEMPLES ACCORDING TO LOSS

Estimated loss (Rs.)	Number of affected temples	Total loss (Rs.)
0 — 1,000	15	11,400
1,001 — 2,000	10	14,600
2,001 — 3,000	5	13,500
3,001 — 5,000	12	45,500
5,001 — 10,000	16	77,800
10,001 — 15,000	4	57,500
15,001 — 20,000	5	86,700
20,001 — 30,000	5	1,30,000
30,001 — 50,000	4	1,75,000
50,001 and above	2	2,00,000
Total	78	8,12,000

Some of the famous mosques in the city like the Sheikh Sallah *Dargas* situated near Shivaji bridge were damaged considerably. In all 13 mosques and *dargas* suffered in the disaster. Their estimated loss is given in Table 3-19.

Table 3-19 : DISTRIBUTION OF AFFECTED MOSQUES ACCORDING TO LOSS

Estimated loss (Rs.)	No. of affected mosques	Total loss (Rs.)
0— 5,000	7	19,300
5,001—10,000	2	16,700
10,001—20,000	2	31,300
Above 50,000	2	2,50,000
Total	13	3,17,300

The total loss of various institutions together with that of places of worship came to 25,57,700 rupees. The figures of total estimated loss of different institutions and the places of worship are presented in Table 3-20.

Loss to personal property

In Poona, the residential and other buildings had been built right up to the banks of the river Mutha and at some places even encroached upon the river bed. Many of the houses along the northern bank of the river dated from the nineteenth century. The houses in certain parts, viz., Pulachi Wadi, Tophkhana along the southern bank, were *kaccha* structures. Most of the old and *kaccha* structures could not withstand the impact of the onrushing water. They crumbled immediately under the pressure of the water or else were so

Table 3-20 : AMOUNT OF LOSS BORNE BY INSTITUTES

<i>Type of institution</i>	<i>No. of institutions</i>	<i>Total loss (Rs.)</i>	<i>Percentage of units</i>	<i>Percentage of loss</i>
Schools and colleges	10	4,14,900	3.72	16.22
Libraries and research institutes	6	6,33,700	2.23	24.77
Rescue homes	5	45,300	1.86	1.77
Hospitals	1	1,03,000	0.37	4.03
Classes, montessori	87	76,000	32.34	2.97
Clubs, gymnasium	50	34,300	18.59	1.34
Miscellaneous	19	1,21,200	7.06	4.74
Temples	78	8,12,000	29.00	31.75
Mosques	13	3,17,300	4.83	12.41
Total	269	25,57,700	100.00	100.00

damaged as to become dangerous to occupy. The modern buildings built in stone and burnt bricks with lime or cement mortar, located mainly on the southern bank of the river, could withstand the high floods but were damaged to varying extent. All the hutments and other temporary shelters situated in Mangalwar, Kasba and Shivajinagar wards were swept away with the current. The severity of the damage caused naturally varied with the material of the building, the force of the onrushing water and the height of the water column. Likewise the severity of the loss of personal belongings was dependent upon the location of the building.

Information available in the aid-application forms filled in by the affected families was referred to for estimating the loss of personal property. Loss to the movable and the immovable property was entered separately in these forms. Information relating to the loss to the immovable property was also sought during the survey of damaged houses, conducted by the Gokhale Institute. These estimates, however, were subjective and hence had to be accepted with their limitations. In the case of immovable property, it was possible to arrive at the estimate of loss by two indirect methods.

In the first method the reconstruction cost of the damaged house was calculated, while in the second, use of the assessed value of the damaged property was made. In the survey of damaged houses, conducted by the Gokhale Institute, information about the total number of habitable rooms existing on 12th July and the condition of the rooms, viz., whether totally collapsed, partially collapsed or in need of major or minor repairs after the disaster, was noted. The damaged structures were classified into three categories: (1) totally collapsed, (2) severely damaged, and (3) partially damaged. The information relating to the condition of damaged structures and the number of damaged rooms is given in Table 3-21.

Table 3-21 : DAMAGED STRUCTURES AND ROOMS CLASSIFIED ACCORDING TO EXTENT OF DAMAGE

	<i>Condition of structure</i>			
	<i>Totally collapsed</i>	<i>Severely damaged</i>	<i>Partially damaged</i>	<i>Total</i>
No. of structures	742	690	959	2391
Average No. of rooms per structure	7.22	10.75	10.95	9.70
Total No. of rooms in the structure	5362	7424	10401	23187
No. of rooms totally collapsed	5117	4715	1166	10998
No. of rooms partially collapsed	228	740	559	1527
No. of rooms requiring—				
major repairs	17	1409	4673	6099
minor repairs	—	560	2270	2830

There were 2391 damaged structures with 23,187 rooms. Of these nearly half the rooms collapsed totally. For the estimation of loss, a room was taken as the unit of measure assuming the average size of a room as 100 sq. ft. A large hall was taken as equivalent to two rooms. The reconstruction cost of a room admeasuring 10' × 10' built in bricks with asbestos or ironsheet roofing was taken to be 1,500 rupees. This estimate was for a medium-quality permanent structure, allowing for corridors or passages, common bathrooms and latrines, etc.

The estimate of loss of a room collapsed totally was taken to be equivalent to the reconstruction cost of a room, viz., 1,500 rupees. For partially destroyed rooms, i. e., where roof, one or two walls, etc., were destroyed, the reconstruction cost was assumed to be 1,000 rupees. It is true that the degree of damage could not be the same in all cases. Nevertheless, an average figure had to be used to get a rough approximation of the total loss. In the case of rooms requiring major repairs, a similar problem arose. The loss in such cases was taken as 750 rupees, i.e. 50 per cent of the reconstruction cost. In the case of rooms calling for minor repairs like repairs to plastering, flooring, window panes, electric fittings, etc., a sum of 200 rupees per room was assumed as the estimate of loss. Separate estimates were prepared for the rooms in the totally collapsed, severely damaged, and partially damaged structures.

The second estimate was based on the information regarding the rateable value of the properties, available through the Assessment Registers maintained by the Poona Municipal Corporation. The assessed value of a property could be taken as 16 times the rateable value. For the totally destroyed houses the estimate of loss was taken equal to 16 times the rateable value. For severely damaged and partially damaged houses, loss was taken as equivalent to 12 times and 5 times their rateable value respectively. In addition

an estimate of loss prepared on the basis of information given by the owners of damaged houses at the time of the survey was also prepared. The estimates of the loss of immovable property, based on the three different methods are presented in Table 3-22.

Table 3-22 : ESTIMATES OF THE LOSS TO DAMAGED STRUCTURES ACCORDING TO THE EXTENT OF DAMAGE

Condition of the structure	Estimated loss				Reporred loss per structure (Rs.)
	Based on reconstruction cost		Based on rateable value		
	Total loss (Rs.)	Loss per structure (Rs.)	Total loss (Rs.)	Loss per structure (Rs.)	
Totally collapsed	79,16,250	10,669	54,86,060	7,393	20,182
Severely damaged	89,81,250	13,016	59,03,770	8,556	18,660
Partially damaged	62,66,750	6,535	39,20,700	4,088	7,590
Total loss (Rs.)	2,31,64,250	—	1,53,10,530	—	—

The estimated loss based on the reconstruction cost was Rs. 9,688 per structure and the total estimated loss worked to 2,31,64,250 rupees. The estimated loss based on assessed value was 1,53,10,530 rupees, which is about two thirds of the estimate based on reconstruction cost.

Besides the damaged houses, almost an equal number of structures were affected through submergence. Estimated number of submerged rooms in those houses was 16,560. Many of those rooms called for reconditioning as the paint was spoilt, glass panes were broken and so on. The cost of such repairs was put at 50 rupees per room. The estimated total loss on this account worked out to 8,28,000 rupees. Adding this amount to the estimated total loss of damaged structures, the total loss to residential buildings works to 2,39,92,250 rupees.

The loss of buildings used for non-residential purposes, situated mainly on both the sides of Sambhaji and Shivaji bridges, is not included in the above estimate. The estimated number of such buildings where mainly offices or shops were located was 682. The reconstruction cost of these damaged premises used for non-residential purposes comes to 10,23,000 rupees. A large number of huts and other temporary structures were totally destroyed in the disaster. The estimated number of such structures was 2000. Assuming the average reconstruction cost of a hut as Rs. 200, the total loss of these temporary structures works to 4,00,000 rupees. The total loss to the immovable property thus comes to 2,54,15,250 rupees.

The official estimate of total loss of all the immovable property was 2,57,59,800 rupees. This included the loss to premises and buildings of indus-

trial establishments, institutions, temples, etc., which is not included in the above estimate but comes under the heads of industrial loss and institutional loss. If allowance is made for this factor, the official estimate comes fairly close to the above estimate based on reconstruction cost.

Total number of affected families

In order to estimate the total loss to movable property, it was first necessary to determine the total number of affected families. Information collected from various sources was collated for this purpose. The survey of damaged houses conducted by the Gokhale Institute recorded the names of families residing in the damaged buildings. This information was compared with the information available through the aid-application form, and wherever there was discrepancy between the two sets of data the house was revisited for verification. The survey, however, did not cover the houses which were only submerged but not damaged. A list of submerged but undamaged houses was therefore prepared with the help of the list prepared by the Corporation, the aid-application forms and actual visits to the site when necessary. For obtaining the information about the number of families staying on the different storeys in the affected houses, the Property Inspection Book, maintained by the Corporation, was consulted. This information was also tallied with that available from the aid-application forms, and on-the-spot verification was carried out in case of discrepancy. In order to make allowance for the sub-tenants which are not recorded in the Corporation registers, the proportion of sub-tenants to the total number of tenants noted in the surveyed houses was applied.

An effort was also made to ascertain the number of families residing in temporary huts and tin sheds, by consulting the Corporation registers and by actual visits to the sites. The number of huts in each locality could be known fairly accurately, but the number of affected families from these huts could be only an approximation.

The estimated total number of affected families was 26,625. As the data from various sources were collated to obtain this estimate, a certain margin of error could not be avoided. The percentage distribution of the affected families according to location, is given in Table 3-23. Of the total number of affected families, 60 per cent families were from the four wards, viz., Shivajinagar, Kasba, Shaniwar and Narayan.

The movable property lost in the Panshet disaster included personal effects and household goods like furniture and utensils, clothes and ornaments. These were either carried away with the torrent or were buried under the huge mounds of debris. The food-grains and other edibles were totally wasted. Durables like radios, glassware, crockery, clocks, cycles were either totally destroyed or badly damaged. Important papers, bank notes, and business and professional documents were spoiled. Ancient documents and manus-

cripts of historical value, rare book-collections and records, reference works and research papers were also rendered useless. One cannot help thinking that such a colossal and irreparable loss could have been averted if thought had been given to the consequences of the impending calamity.

For evaluating the loss of personal movable property, it was decided to make use of the information available from aid-application forms. The affected

Table 3-23 : PERCENTAGE DISTRIBUTION OF AFFECTED FAMILIES ACCORDING TO LOCATION

<i>Location</i>	<i>Number of families</i>	<i>Per cent of families</i>
Mangalwar	2345	8.8
Somwar	1820	6.8
Kasba	4122	15.5
Other eastern wards	1225	4.6
Shaniwar	3817	14.3
Narayan	3307	12.4
Sadashiv	1212	4.6
Shivajinagar	4516	17.0
Erandawana	688	2.6
Suburban area	953	3.6
Hutments	2620	9.8
Total	26625	100.0

families who did not apply for aid could not be taken into consideration. The reported figures of loss were subjective estimates and could give the outside limit of the loss involved.

The estimates of average loss were prepared separately for different wards and are given in Table 3-24. For all the affected families average loss came to 1146 rupees per family.

Table 3-24 : AVERAGE LOSS BORNE BY FAMILIES ACCORDING TO LOCATION

<i>Location</i>	<i>Average loss per family (Rs.)</i>
Mangalwar	939
Somwar	635
Kasba	1010
Other eastern wards	635
Shaniwar	1530
Narayan	1368
Sadashiv	503
Shivajinagar	1615
Erandawana	735
Suburban area	476
Hutments	344
All wards	1146

The average loss according to different income-groups is shown in Table 3-25 for different localities. The average loss increases as one moves up the income-scale in all the groups of wards. It was about 600 rupees in the lowest income-group which included nearly half of the total families. In the next group of Rs. 100 to Rs. 200 which covered another 40 per cent of the families, the average loss was 1,127 rupees. About 13 per cent of the total families suffered on an average loss of more than 2,000 rupees. In each of the income groups the average loss was about six times the average monthly income of the family.

The total loss of movable property was arrived at by weighting the figure of average loss for each ward by the estimated number of affected families from the respective wards. The total estimated loss of movable property amounted to 3,05,12,250 rupees.

Table 3-25 : AVERAGE LOSS OF MOVABLE PROPERTY PER FAMILY, ACCORDING TO INCOME GROUP AND LOCATION

<i>Location</i>	<i>Monthly family Income (Rs.)</i>				<i>All income groups</i>
	0-100	101-200	201-300	301+	
	<i>Average loss per family (Rs.)</i>				
Eastern city wards ¹	570	844	1812	2192	841
Western city wards ²	773	1377	2087	3387	1350
Other wards ³	516	1330	1963	8348	1083
All wards	600	1127	1953	3931	1050
Per cent of families	47.5	39.5	9.5	3.5	100.0

1 Mangalwar, Somwar, Kasba, Raviwar, Budhwar, Ganesh, Nagesh, Nana.

2 Shaniwar, Narayan, Sadashiv

3 Shivajinagar, Erandawana, Yeravada, Mundhava, Suburban Roads and *Wadis* Ghorpadi, Dhanori, Kirkee, Cantonment.

A summary table of the estimates given so far is prepared to help recapitulation. (See Table 3-26)

The direct loss inflicted upon the various agencies in the Panshet calamity was estimated at about 13.5 crore rupees. About 42 per cent of the loss was on government account and 58 per cent on private account.

As a consequence of the disaster the occupational routine of many of the affected families was interrupted. Workshops and shops were closed, artisans and professionals had to discontinue their work. Casual workers lost their employment. The loss suffered on account of such a closure could be taken on an average as equivalent to the monthly earnings of the affected concerns or individuals. Special hardship was imposed upon those who lost their place of

occupation as well and had to seek new accommodation and adjust to the new surroundings. Period of closure was longer also in the case of those who encountered difficulties in replacing the machinery or other equipment due to import restrictions or other bottlenecks. It was not possible, however, to arrive at an estimate of the loss involved on account of closure, for want of adequate information.

Table 3-26 : ESTIMATED TOTAL LOSS TO PROPERTY OF DIFFERENT AGENCIES IN PUBLIC AND PRIVATE SECTORS

<i>Agency</i>	<i>Estimated loss (Rs.)</i>	<i>Percentage of loss</i>
Public Sector		
<i>State Government</i>		
Khadakwasla dam	1,50,00,000	11.10
Panshet dam	3,50,00,000	25.92
Other Property	53,12,000	3.93
<i>Central Government</i>		
Poona Municipal Corporation	15,62,600	1.16
Private Sector :		
Poona Electric Supply Company	3,50,000	0.26
Industry and Commerce	1,90,06,800	14.07
Institutions	25,57,700	1.89
<i>Personal Property :</i>		
Immovable	2,54,15,250	18.81
Movable	3,05,12,250	22.60
Total	13,50,71,600	100.00

The expenses involved for the operations like removing the debris, destroying rotten grain, spraying insecticides, arranging for anti-cholera inoculation, etc., must also be put on the debit side as they became necessary because of the extraordinary circumstances arising out of the Panshet disaster. The expenses made by the Corporation in this respect were 3,35,000 rupees. Assistance in this work was rendered by the army as well as the Government departments. It was reported that Government spent about 3,30,000 rupees on this account. It was not possible to get the amount of expenditure incurred by the army.

The cost of execution of temporary water-supply scheme put into operation to tide over the immediate difficulties as well as the running cost over the period during which the schemes were in operation, must also be put on the debit side. The work of diversion of streams was undertaken by the army and the amount of expenditure incurred was not available. The total capital cost of Mulshi temporary water-supply scheme was 117 lakh rupees, of which 45 lakh rupees could be taken as the value of the material (mainly water pipes)

which could be salvaged. The capital cost after deduction of this amount came to 72 lakh rupees. The running-costs included depreciation, interest on salvageable capital, operation and maintenance costs of Vithalwadi pumping station (from July to December every year), of pumping station at Mulshi dam and Aundh boosting station (from January to June every year). The total running cost was estimated at 20 lakh rupees per annum. The royalties payable to the Company at a rate of 0.03 p. per unit amounted to nine lakh rupees per year. It is reported, however, that Messrs Tata Power Co., Ltd. have not as yet charged any royalty. The capital cost of Mulshi scheme (Rs. 72 lakhs) plus the recurring cost over four years (Rs. 80 lakhs) must be treated as a loss on account of Panshet calamity.

Loss to property in villages

Villages situated on both sides of river Mutha suffered heavy losses in Panshet calamity. About 30 villages including Kuran, Malkhed, Kondhwe-Dhavade, Shivane, Nanded, Kharadi, Kalwadi came under the fury of the swollen river. Most of the structures in Kuran, Kondhwe-Dhawade, Shivane, Nanded, etc., were levelled down. A total number of about 400 houses from these villages were destroyed. The loss on account of immovable property was estimated at 4,00,000 rupees assuming the reconstruction cost as 1,000 rupees per structure. A conservative estimate puts the number of affected families around 1300. If the average estimate of the loss of movable property is taken as 500 rupees the total loss of all the affected families comes to 6,50,000 rupees.

Agriculturists had to bear considerable loss on account of damage to agricultural produce and cultivable land. The torrent of water swept away acres of standing crops. Newly planted paddy crop, vegetable and fruit orchards were ruined. For estimating the loss involved, the figures of acreage under various crops at the time of the calamity were obtained from the relevant government records. The loss per acre was based on the average yearly net income of different crops. The total acreage under each crop, loss per acre and the total estimated loss are given in Table 3-27.

Table 3-27 : ESTIMATED LOSS TO DIFFERENT CROPS

<i>Crop realign</i>	<i>Area under crop (acres)</i>	<i>Loss per acre (Rs.)</i>	<i>Total loss (Rs.)</i>
Paddy	900	80	72,000
Vegetables	1500	100	1,50,000
Fruit-gardens	650	500	3,25,000
Total	3050	—	5,47,700

The estimated total loss of standing crops came to about 5.5 lakh rupees. Capital expenditure involved in the preparation of cultivable land is not included in the above figure.

So far the loss borne by the agriculturists immediately after the disaster was considered. However, the Panshet disaster had far-reaching effects on the agricultural economy. Cultivable lands along the river banks were damaged considerably due to erosion and inundation. The amount of affected acreage and the details of damaged equipment are set out below :

(a) Totally damaged land	204 acres
(b) Reclaimable land	735 acres
(c) Number of wells damaged and filled up	52
(d) Number of damaged oil-engines and electric motors	34

The total loss of cultivable land due to inundation was estimated at 4,83,000 rupees. The estimate of the loss suffered due to damage to the wells, engines, etc., was not available.

Considerable number of casual labourers suffered temporary loss of employment due to cessation of cultivation and of the work on Mutha right bank canal. However, it was not possible to estimate the loss suffered by such workers.

The failure of the water supply meant a recurring loss of cultivation in the irrigated land. The irrigated land under Mutha canals was about 13,500 acres. Seventy percent of this land was under food crops, particularly *jowar* and *bajra*. Vegetables were grown in about 1450 acres. 700 acres were devoted to fruit-growing and about 850 to fodder, and 450 to groundnut, cotton, and chillies. The value of the total produce on irrigated land was estimated to be 50 lakh rupees per year. With the cessation of irrigation water it was possible to grow on this land only the seasonal crops with estimated annual receipts of 13 lakh rupees. Annual loss of produce from irrigated land would therefore amount to 37 lakh rupees per year. This loss over a period of four years would be 1,48,00,000 rupees.

Besides these crops grown under canal irrigation, sugarcane was an important crop grown in the affected area. It was grown on sewage water and well-irrigation. The water supply of most of the wells in that area was partly due to the seepage of canal water. When water supply from canal was discontinued, it was reported that adequate water supply could not be obtained from a number of wells and consequently the area under sugarcane had to be reduced. The area under sugarcane (as recorded in government records) in the villages in the vicinity of the right bank canal was about 3400 acres in 1960-61, while by 1963-64 it was gradually reduced to 2050 acres. If the annual gross receipts from sugarcane are taken as 2,500 rupees per acre, the average annual loss works out to 17.5 lakh rupees and the loss for the period of four years amounts to 70 lakh rupees.

The total loss in terms of physical destruction of immovable and movable property, inflicted in the Panshet disaster as well as the indirect losses due to

loss of irrigation facility and cleaning and other operations has been estimated for the urban as well as rural areas, and is summarized in Table 3-28.

Table 3-28 : TOTAL AMOUNT OF LOSS ON ACCOUNT OF PANSHET DISASTER

	<i>Total amount of loss (Rs.)</i>
Loss to Property :	
Public sector	5,72,29,600
Private sector from Poona	7,78,42,000
from rural areas	2,38,80,000
Expenses on account of water supply	1,52,00,000
Cleaning operations	6,65,000
Total loss	17,48,16,600

The total estimated loss amounted to about 17.5 crore rupees. This loss included recurrent loss up to the year 1965. The figure will mount higher and higher so long as the Mulshi water-supply scheme continues to operate and the agriculturists do not receive the irrigation facilities as much as they were receiving before the failure of Khadakwasla dam.

As noted above the estimate does not include the loss of earnings involved on account of loss of employment. It was not possible to measure in monetary terms the loss which many of the affected families had to bear on account of the sudden disruption of their whole pattern of life. These families have to suffer the ill-effects of the Panshet disaster till they restored the original asset-position. In the meantime, if it becomes impossible to fulfil a number of commitments or if other plans, particularly of educating the children, get upset that will have a very far-reaching ill-effect on their total life. Disruption in the occupational set-up for a long period will have particularly serious mal-effects in the case of cultivating families also.

CHAPTER IV

Measures of Relief

THE Normal life in Poona city was completely dislocated and the citizens of Poona were confronted with formidable problems after the Panshet disaster on 12th July 1961. As thousands of people were deprived of their homes, colossal efforts were required to provide them with temporary shelter and succour. A large number of other problems, viz., removal of debris and rotten grains, restoration of communications, provision of at least skeleton water-supply, demanded immediate action. Sudden onslaught of the disaster caught the people as well as the authorities completely unawares, and confusion and despair prevailed.

People who had deserted their houses on the advance of the water column, returned back when water receded, only to find their houses ruined, their belongings either carried away by the torrent or buried under the heap of mud. They had no alternative but to seek temporary shelter elsewhere. Congregation of the stricken and the homeless in schools, colleges, and other non-residential buildings was spontaneous. The problem of providing temporary shelter¹ to the affected families was thus solved automatically without any deliberate effort.

On the morning of 13th July, affected families came back to the ruins with a hope to find something of their belongings under heaps of debris. It was a difficult task to search for their belongings amidst the heaps of mud, broken glass, and other debris. They had to rely solely on self-help to unearth the goods and transport them. The security measures were inadequate and they had to keep a watch on their belongings, particularly at night. While the affected people were busy searching their belongings, cleaning the houses and premises, large groups of people from the unaffected parts of the city crowded the devastated areas discussing the pros and cons of the event. These crowds added to the congestion of the affected areas and hindered the cleaning and other operations. However, no control could be imposed on the movement of the people for the first two days after the disaster, and there was confusion and chaos in the affected areas.

Cleaning operations

The affected part of the city was littered with heaps of mud and rubble which had blocked most of the roads and lanes. Yet little organized effort was

¹ These were later reorganized as relief centres, details of which will be found in a subsequent section.

evident till 14th July, at removing the debris from the streets and restoring communications. Help from the Army was requested on 14th July and on the next day systematic cleaning operations began. The movement of the public was also put under control with the help of army personnel.

About 5,000 *jawans* of the Indian Army were deployed on the work of cleaning. As the army worked with the aid of earth-moving machinery, the cleaning process gathered momentum. The carrier vehicles for transporting the debris out of the city were provided by the Army (50 trucks), the Building and Construction Department, Government of Maharashtra (25), and the Poona Municipal Corporation (30). The work of pulling down the dangerous structures began simultaneously.

By 20th July, most of the important roads and avenues in the city were cleared. The clearing of narrow and winding lanes in the residential localities took more time. On 27th July, the Army was withdrawn from the work of clearing the debris. By the middle of August, trucks, bulldozers and other heavy machinery from the Government Departments were also withdrawn. Thereafter the remaining work of cleaning the city was carried out by the Poona Municipal Corporation. The work of cleaning residences, shops and premises of institutions, was carried out mainly by the owners themselves. Volunteers from youth organizations, social and charitable institutions and from political parties also participated in this work.

Hygiene

With so much filth lying for a long time in the affected part of the city, fear of a major epidemic was foremost in the hearts of the citizens. The situation was aggravated by heaps of rotten grain lying at the Government Godowns. To obviate the danger of an epidemic the authorities opened over seventy typhoid and cholera inoculation centres. Some arrangements were also made with private medical practitioners. More than three lakhs of people were reported to have got themselves inoculated within a fortnight, and incidence of a major epidemic was successfully averted.

Communications

Communications between the northern and the southern parts of the city were hampered as the three bridges—the Sambhaji, the Sangam and the Old Railway bridge—were, extensively damaged. The Shivaji bridge had to carry the entire traffic moving between the two parts of the city. The bridges were repaired in parts by three agencies, viz., the Army, Buildings and Construction Department and the Poona Municipal Corporation. The work of repairing the bridges and reconstruction of the roads began on 15th July. Within a week *kachcha* roads were ready and the bridges were opened for the pedestrian traffic. Vehicular traffic was allowed on the bridges from the first week of August after the completion of *pukka* roads. Asphalted of the roads, which was

carried out by the Corporation, was completed by the beginning of 1962. The two arches of the Sangam bridge had to be built anew, and that took more than a year.

Electricity and Telephones

The work on restoration of power lines, electric mains and poles, which were damaged began from 14th July. New lines were fixed on Sambhaji bridge and on the Old Railway bridge because Sangam bridge was out of use. By the end of July 1961, normal electric supply was restored in the unaffected parts of the city. Street lighting in the affected parts of the city was restored in the first week of August and residential lighting by the end of the second week.

By the end of July, the repairs to the damaged telephone lines and the fixing up of new lines on the bridges were completed and the telephone system began to function normally.

Water supply

Restoration of water supply was perhaps the most formidable problem. The only source of water supply left after the disaster was the Katraj reservoir. From this reservoir water is released into the cisterns located in central wards of the city. Naturally there were long queues for obtaining water from the cisterns. The Poona Municipal Corporation arranged distribution of water from Katraj reservoir by means of 41 tankers to the other areas of the city. However, as the number of tankers was limited, great difficulties were encountered to obtain even a bucketful of water, especially by the families at the relief centres and by those living in big chawls. The available supply barely satisfied the requirements of drinking-water, and it was well-nigh impossible to procure water for other needs. The work of cleaning the houses soiled with dirt and mud was considerably hampered due to the acute shortage of water. The total supply up to 15th July was as low as four million gallons a day, instead of about 30 million in normal times. Moreover, the distribution was extremely uneven. On 16th July, arrangements were made at the Ambil Odha to pump water from the stream into the Mutha Right Bank Canal. This made it possible to supply 6.11 million gallons of water per day.

In order to augment the extremely inadequate water supply, it was necessary to think forthwith of other measures. Some of the engineers brought forward suggestions to link two nearby streams to Mutha Right Bank Canal. Subsequently, on 18th July the stream near village Kirkitwadi, situated at a distance of about 10 miles from Poona to the south-west, was diverted and linked to the Right Bank Canal, increasing the total water supply to 7.5 million gallons. On 21st July, Army engineers completed the diversion of Vadgaon stream also and joined it to the Right Bank Canal. About 350 private wells were re-opened and pumps were installed on some of them to lift the water. The total water supply increased to 9.5 million

gallons—6 million gallons from the Katraj reservoir and 3.5 millions from the streams; the supply from Ambil stream was closed on the 21st July. It was not yet possible to supply water through pipe-line to Shivajinagar, Erandawana and Cantonment areas, as the water-lines carrying water to these areas were swept away. The work of laying new water-lines on the Shivaji and Sambhaji bridges was completed by 26th July and the supply of tap water to these areas was resumed. Distribution of water by means of tankers to relief centres and to high-level areas, however, was continued.

All these arrangements were purely temporary and provided water supply far short of the normal requirements. It was necessary to take some more measures, as the supply from the streams was expected to cease by the end of the monsoon. It was therefore decided to lift water from the river Mutha into the Right Bank Canal, by installing suction pumps near Vitthalwadi. From 2nd September, water was available from this source and the total supply rose to 10 million gallons per day. With a view to stabilizing the water level in the river bed, a small weir was constructed near Vitthalwadi by the end of October.

The problem of supplying water after the rainy season and particularly during the summer months was still to be solved. Scheme of supplying water from Mulshi Dam, situated 26 miles to the west of Poona, was considered feasible. Subsequently, the owners of the Mulshi Dam, viz., Tata Power Co. Ltd., were requested to permit the use of water from Mulshi lake, on which power is generated to serve the needs of Bombay city. On 26th July it was reported that the Company had given their assent.

The work on Mulshi scheme commenced in August 1961. Water was lifted from Mulshi reservoir and released into the river Mula. Its flow was impounded by a small weir built near Aundh where water was again lifted and carried to a boosting station for chlorination. The water was further carried to a cistern with a capacity of one million gallons, which was built at the foot of Chatushringi Hill. From Chatushringi, water was carried to the city and the cantonment areas through two 27-inch pipe-lines.

About 25 million gallons of water supply per day became available from Mulshi lake by the end of December 1961. It was divided almost equally between Poona City, Poona Cantonment and Kirkee Cantonment. It amounted to about 75 per cent of the pre-disaster water-supply in the city area. It was decided that the use of water-supply from Mulshi was to be restricted to eight months in a year, i. e. from October to June, while during the rainy season supply was to be made from the river Mutha. These arrangements were to continue till normal sources of supply became operative.

The movement of displaced families

The disaster brought in its wake displacement of a large number of families. The displaced families were classified into three groups: (i) families that stayed at the relief centres, (ii) families that stayed at places other than relief centres,

and, (iii) families that returned to their original residences within a short time and, unlike the other two categories, need not be considered as displaced. Information for the first group of families was obtained from the lists of inmates, maintained at the relief centres; for the second group, from the applications submitted by the affected families for assistance; and for the third group, mainly from the survey of damaged houses conducted by the Gokhale Institute.

The movement of the affected families is studied in relation to the location of the place of shelter and the condition of the previous place of residence. (Table 4.1) The affected houses are grouped, according to the degree of destruction, into four categories, viz., totally collapsed houses, partially collapsed houses, houses requiring major repairs and houses requiring minor repairs. About 23 per cent of the total affected families stayed at their original place of residence. Some families that had returned to their original place of residence even when their houses were totally collapsed reported that they erected some temporary shelters. About 26 per cent of the affected families had taken shelter at the relief centres, while more than 40 per cent of the families had moved to their friends or relatives. The proportion of families that stayed at relief centres was relatively higher (50 per cent) in Mangalwar ward because of the preponderance of hutment dwellers. In Mangalwar 50 per cent of the affected families were hutment dwellers, of whom nearly 75 per cent had taken resort to relief centres, while in the remaining wards, the percentage of hutment dwellers was only 10.

The economic condition of the affected families seems to be an important factor determining whether the affected families took shelter with their friends and relatives, or had to take resort to a relief centre. Distribution of the affected families according to income and the place of shelter, is presented in Table 4.2. More than 66 per cent of the families staying at the relief centres reported income less than 100 rupees per month. While only about six per cent of the families reported income above 200 rupees per month. Of the families that stayed outside the relief centres, nearly 20 per cent reported a monthly income above 200 rupees.

Movement of the families that stayed with their friends and relatives, according to their previous place of residence, and the place of residence of their friends and relations, is shown in Table 4.3. Almost all the families shifted to their friends and relatives living in Poona city. Only four per cent of the families moved out of the city. The proportion of families going to the nearby villages was relatively higher in the case of families who were previously residing in outlying areas, viz., Suburban Areas and in Shivajinagar and Mangalwar wards. In majority of the cases the affected families moved into the unaffected

Table 4.1 : PERCENTAGE DISTRIBUTION OF AFFECTED FAMILIES ACCORDING TO PLACE OF SHELTER AND CONDITION OF THE ORIGINAL PLACE OF RESIDENCE.

Place of shelter	Condition of the original place of residence				
	Totally collapsed	Partially collapsed	Major repairs needed	Minor repairs needed	All houses
<i>Eastern city wards</i>					
	Per cent of affected families				
Relief centres	44.7	22.2	19.8	8.8	30.0
Friends and relatives	40.1	52.8	39.2	29.1	39.7
Original place of residence	6.8	16.4	30.7	51.8	21.2
Not given	8.4	8.6	10.3	10.3	9.1
Total	100.0	100.0	100.0	100.0	100.0
<i>Western city wards</i>					
Relief centres	33.5	12.0	23.5	5.3	23.6
Friends and relatives	57.4	66.7	44.7	39.6	53.8
Original place of residence	2.7	13.4	24.2	48.5	15.7
Not given	6.4	7.9	7.6	6.6	6.9
Total	100.0	100.0	100.0	100.0	100.0
<i>Other wards</i>					
Relief centres	35.7	19.6	16.3	2.4	22.6
Friends and relatives	45.5	40.3	20.3	16.8	34.3
Original place of residence	7.9	28.1	45.5	70.6	31.7
Not given	10.9	12.0	17.9	10.2	11.4
Total	100.0	100.0	100.0	100.0	100.0
<i>All wards</i>					
Relief centres	38.6	18.4	20.4	5.4	25.9
Friends and relatives	46.9	54.6	37.3	26.7	42.2
Original place of residence	5.9	17.7	31.4	58.5	22.7
Not given	8.6	9.3	10.9	9.4	9.2
Total	100.0	100.0	100.0	100.0	100.0

parts of the same ward or to the unaffected wards adjacent to their previous place of residence. Similar movement was also observed in the case of families taking resort to the relief centres (Table 4.4); 80 to 90 per cent of the affected families from all the wards except Mangalwar, moved to the relief centres situated in the same ward where they stayed previously or in the adjoining wards.

Relief centres

As indicated above, a large number of families took shelter at various institutions, where for the first two days there were no arrangements for food, or even water. Certain philanthropists and charitable associations made arrangements to despatch cooked food for the destitutes. However, arrangements for the proper distribution of food could not be made and a part of the cooked food got spoiled before it reached the needy. After two days, the government recognized the places where a large number of families had taken shelter, as relief centres, and made arrangements for the provision of basic necessities.

Table 4.2 : PERCENTAGE DISTRIBUTION OF AFFECTED FAMILIES STAYING AT RELIEF CENTRES AND OUTSIDE THE CENTRE, ACCORDING TO INCOME GROUP

Monthly family Income (Rs.)	Families staying at	
	Relief centre	Outside the centre
No income	5.45	—
Up to 50	16.94	6.17
51-100	44.92	35.61
101-150	18.09	21.18
151-200	8.19	18.19
201-250	3.45	11.70
251-350	2.96	4.23
Above 350	—	2.92
Total	100.00	100.00

Table 4.3 : PERCENTAGE DISTRIBUTION OF FAMILIES GOING TO FRIENDS AND RELATIVES, ACCORDING TO THE LOCATION OF RESIDENCE PRIOR TO THE DISASTER AND AFTER

Location of previous place of residence	Location of place of residence after the disaster								
	Mangalwar, Somwar, Kasba, Rasta	Raviwar, Budhwar	Shukrawar, Nana and other wards*	Shaniwar, Narayan, Sadashiv	Shivaji-nagar, Erandawana	Cantonment and Suburban area	Villages in the P. M. C. area	Outside Poona	Total
	Percentage distribution of families								
Mangalwar	36	6	21	3	3	15	10		100
Somwar	52	9	18	5	2	7	3	4	100
Kasba	49	13	18	6	3	3	4	4	100
Other eastern wards	13	33	39	4	1	3	3	4	100
Shaniwar	10	14	16	46	5	2	3	4	100
Narayan	4	9	16	57	4	2	5	3	100
Sadashiv	5	7	17	56	4	2	6	3	100
Shivajinagar, Erandawana	5	4	11	9	50	6	11	4	100
Suburban area	4	—	1	—	6	66	21	2	100
A" wards	20	10	16	24	13	7	6	4	100

* Vetal, Ganesh, Bhavani, Ganj, Ghorpadi

Table 4-4 : PERCENTAGE DISTRIBUTION OF FAMILIES TAKING RESORT TO RELIEF CENTRES, ACCORDING TO THE LOCATION OF THE CENTRE AND OF THE PREVIOUS PLACE OF RESIDENCE.

Location of previous place of residence	Location of Relief Centre						Total
	Mangalwar, Somwar, Kasba, Rasta	Raviwar, Budhwar and other wards*	Shaniwar, Narayan, Sadashiv	Shivajinagar, Erandawana	Cantonment	Suburban area	
	Percentage distribution of families						
Mangalwar	34	21	1	1	33	10	100
Somwar	78	13	4	1	4	—	100
Kasba	65	25	5	2	3	—	100
Other eastern wards	—	45	3	1	—	—	100
Shaniwar	30	8	—	2	—	—	100
Narayan	4	11	83	2	—	—	100
Sadashiv	2	8	89	1	—	—	100
Shivajinagar, Erandawana	2	4	2	79	4	9	100
Suburban area	1	1	—	56	30	12	100
All wards	27	14	22	21	11	5	100

* Shukrawar, Nana, Vetal, Ganesh, Bhavani, Ganj.

Fifty-two relief centres were recognized on 15th July 1961. Their number increased to 58 by 20th July. Between 21st and 25th July, another 14 centres were recognized, and by the end of July, six more centres were opened bringing the total to 78. The number of persons staying at the relief centres fluctuated considerably for the first 10 days as some of the families left the centres after cleaning and repairing their residences, some left Poona, while others came to stay at the centres, when they came to know of the facilities available there. It was reported that in the third week of July there were about 7000 families staying at the centres. A gradual decline in the number of inmates set in from 23rd July, and by the beginning of August, the number of families on relief centres stabilized around 6000.²

The centres were clustered mainly around the affected areas. There were seven relief centres in Rasta, five each in Shukrawar, Shaniwar, and Budhwar, four each in Raviwar and Nana, 11 in Sadashiv, two or three each in Narayan, Kasba, Somwar, Ganj, Ganesh, etc., 12 in Shivajinagar, and nine in Poona Cantonment and Suburban area.

Of the total 78 relief centres, 32 were located in Municipal schools, 31 in private schools, eight in colleges, and the remaining seven centres were located in clubs, rest-houses and wedding halls.

The number of families staying at different centres varied considerably according to the space available. The colleges accommodated on an average 525 persons. The average number of persons staying at relief centres located in the private schools was 390, while the corresponding number for the municipal schools was 260, and for other institutions 350. (See Table 4.5)

As most of the relief centres were located in schools and colleges, academic calendars of a large number of students were affected. The authorities of the institutions urged the government to remove the affected people elsewhere so that the schools and colleges could resume their work at an early date. As a temporary measure the government decided to move the inmates of colleges into municipal schools located in the villages in the Poona Municipal Corporation area. In the second week of August eight centres located in colleges, one each in a school and a hall, were closed, and the inmates were shifted to 32 new centres. Twenty-two of these centres were opened in municipal schools, one in a private school, and five in charity homes. The schools resumed the working of the upper standards by mid-August in a part of the school building, while the dishoused families occupied the rest of the building. This arrangement was quite unsatisfactory for the normal working of the school. Nevertheless, the school authorities were compelled to run the schools under such conditions for about three months. Even though the work of constructing semi-permanent or permanent shelters for the homeless started by the end of

² From 5th August 1961, the relief centres were visited by the investigators from the Gokhale Institute and the information available in the registers maintained at the centres was transcribed after careful scrutiny.

July, the progress was halting and slow. By the beginning of October, only a part of the accommodation was ready. It was therefore decided to erect temporary huts as a makeshift arrangement and this work was undertaken in October.

Table 4-5 : DISTRIBUTION OF RELIEF CENTRES BY SIZE AND TYPE

Size (No. of persons)	Type of institution				Total
	Municipal school	Private school	College	Other	
0 - 100	1	2	—	—	3
101 - 200	11	5	—	2	18
201 - 300	13	5	2	1	21
301 - 400	3	8	—	2	13
401 - 600	1	5	2	1	9
601 - 800	1	2	3	—	6
801 - 1000	1	1	1	1	4
1001 and more	—	2	—	—	2
Total	32	31	8	7	78

The dishoused families were shifted to the new shelters as and when the shelters were ready. The number of inmates at the relief centres decreased, as part of the inmates were moved to the new shelters, yet complete closure of only 10 more centres was possible before 15th of November. It was possible to close the relief centres in all but one private school by the beginning of December; by the end of December 1961, i. e. almost after six months after the disaster, all the relief centres were closed.

The average duration of relief centres was 115 days, the average for centres located at colleges being the least, viz., 29 days. The average duration for centres in municipal schools was the highest (141 days). Average duration for relief centres opened in August was also considerable, viz., 107 days.

Life at the centres

Chaotic conditions prevailed at the centres for a few days immediately after the disaster. Life at the centres became organized gradually, as the authorities of the educational institutions accepted the responsibility of management, the government undertook to supply the necessary edibles, and as the inmates realized the need to adjust to community life. Within a week after the disaster, life at centres settled down to a routine. The day started usually with a clamour for water. No tea was served, but the children generally received milk prepared from milk powder. Two meals were served daily, and sometimes snacks were given out of donated articles.

The institutions provided shelter for the inmates, and the arrangements for preparation and distribution of food were made by the staff of these institutions. The responsibility of supplying water was taken up by the Poona Municipal Corporation with the help of mobile tankers. Due to the limited number of tankers, distribution of water was very uncertain and irregular, and often people had to wait anxiously for securing a bucketful of water. Organizers had a trying time in distributing such a meagre water supply. Some of the institutions reopened the wells in their compound and solved the water problem to a great extent. It was necessary for many to go to the river for bathing and washing purposes.

Sanitary conditions at the relief centres worsened due to lack of water. Moreover, the existing facilities at the institutions proved utterly inadequate for such a large population, and open space around the premises was freely used by the inmates. Consequently for about a fortnight the premises were enveloped in an excessively foul atmosphere. The Corporation authorities then decided to provide trench-type latrines and made arrangements to clean the sanitary blocks.

Failure of electricity caused a great inconvenience at the centres. Petromax lamps were in great demand all over the city, and only a few centres could obtain them in sufficient numbers. A few families had their own lanterns. Otherwise, at night most of the centres were dens of darkness. Yet pilferage or other misbehaviour was not reported.

The biggest single task at the centres was cooking and distributing the food. Food-grains were provided by the government, the quota being 342 grams (or six *chhataks*) of food-grains for every individual above six years of age, and 171 grams per child below six years of age. Cash advances were made to the authorities in charge of the centres for purchasing supplementary articles necessary for cooking. It was necessary to employ paid cooks to prepare meals, as the inmates were generally unwilling to assist in any work. Some of the women from among the affected persons were employed and paid for assisting the cooks.

The meals at the centres normally consisted of rice, *chapaty* and curry. Only on some festive days there was some change in the menu. The food served was more varied and of a better quality at a few centres where cooked food was delivered by some private agencies. At some of the centres certain private agencies supplied supplementary edibles which were given to the inmates in the afternoon.

Kitchen centres

Kitchen centres emerged out of the attempts by certain social and charitable organizations to distribute cooked food to the affected families. The responsibility of arranging the preparation and the distribution of food was usually taken up by the office-bearers of these organizations together with some volunteers. Large halls or premises of these institutes were used to serve two

meals a day to the affected persons. The families who were busy cleaning and tidying their houses and were unable to start cooking, got considerable relief in the initial period through the kitchen centres. The kitchen centres were run with the help of donations in cash and in kind received from the public. Later on these centres were recognized by the government and received food-grains and cash advances from the government. The quality of food served at the kitchen centres was reported to be better perhaps because of the greater help from private sources.

In all there were 21 kitchen centres. All of them were located in the affected wards; nine in the eastern wards, 11 in the western wards, and only one in Shivajinagar area. In addition there were three centres run by a charitable institution without any help from the government.

The institutions running the kitchen centres included charity rest-homes, temples, wedding-halls, and hospitals (Table 4-6). At two centres more than a thousand persons received meals every day. At all the other centres the number of diners was between 200 and 800. Most of the kitchen centres functioned for about a month, the average period of working was 25 days. By the end of August 1961, all the kitchen centres were closed.

Relief and kitchen centres : Receipts and expenditure

The information about the total receipts and expenditure of the relief and the kitchen centres was obtained mainly from the Flood Branch, Poona Collectorate, where records of cash advances, articles supplied in kind to the centres, and of the expenditure accounts submitted by the centres, were available. For evaluating the receipts in kind, the then prevailing prices were taken into consideration.

The consignments from the government consisted mainly of rice, *jowar*, wheat atta, yellow corn, and milk powder. These were sent out from the donated stocks accumulated with the government. In addition government purchased 1,29,800 kg. of rice for use at the centres. The percentage distribution of total cereals delivered at the relief and the kitchen centres is given in Table 4-7.

The estimated total value of cereals (including the purchase price of rice) was 3,78,400 rupees. The expenditure incurred out of monetary grants advanced by the government on other materials necessary for cooking was 4,21,900 rupees; it accounted for 41 per cent of the total cash expenditure. The percentage distribution of the expenditure made out of cash grants is given in Table 8.

A variety of edible articles like milk powder, sugar, *gur*, tea, oil, biscuits, tinned vegetable, pulses and parched rice, etc., was delivered at the relief centres by various agencies. The total estimated value of these articles worked to 2,10,000 rupees.

The share of the donated food was 50 per cent in the total amount of food used at the centres. The shares of individual items were as follows : Milk, 93 per cent; cereals, 80 per cent; prepared edibles, 45 per cent; tea and

Table 4.6 : DISTRIBUTION OF KITCHEN CENTRES BY SIZE AND TYPE

Size (No. of persons)	Type of kitchen centre					Total
	Charity houses	Temples	Ceremonial halls	Associations	Other	
100 - 200	—	2	3	4	—	9
201 - 400	1	2	1	2	—	6
401 - 600	—	—	—	1	1	2
601 - 800	—	—	—	—	2	2
801 - 1000	1	—	—	1	—	2
Total	2	4	4	8	3	21

Table 4.7 : PERCENTAGE DISTRIBUTION OF CEREALS SUPPLIED TO THE CENTRES

<i>Type of cereal</i>	<i>Percentage share</i>	<i>Type of cereal</i>	<i>Percentage share</i>
Rice (purchased)	14.3	Jowar	40.6
Rice (donated)	11.2	Jowar flour	5.2
Wheat	6.0	Maize	6.8
Atta	14.0	Bajra	1.9
		Total	100.00 = (9,04,500 Kg.)

Table 4.8 : PERCENTAGE DISTRIBUTION OF CASH EXPENDITURE BY COMMODITIES

<i>Commodity</i>	<i>Percentage share</i>	<i>Commodity</i>	<i>Percentage share</i>
Grocery	17.4	Services of cooks	27.1
Pulses	6.0	Services of sweepers	7.3
Oil	3.4	Fuel	17.7
Condiments	2.0	Charges for hired utensils, etc.	7.1
Vegetables	8.4	Total non-food items	59.2
Milk	1.4		
Tea & sugar	0.7		
Miscellaneous	1.5		
Total food items :	40.8	All items	100

sugar, 18 per cent; and it was about 3 to 4 per cent each in the case of items like pulses, ghee, and spices. Thus half of the expenses of running the relief centres for about six months were met through private donations coming from a large number of organizations and individuals and the remaining by the Maharashtra State Government. The estimated total expenditure came to 16,28,000 rupees, the total value of food articles being 10,10,800 rupees. The distribution of food expenditure on different items is presented in Table 4.9.

Table 4.9 : PERCENTAGE DISTRIBUTION OF TOTAL FOOD EXPENDITURE BY COMMODITIES

<i>Commodity</i>	<i>Percentage share</i>	<i>Commodity</i>	<i>Percentage share</i>
Cereals	37.4	Tea & sugar	0.9
Pulses	6.5	Milk	20.5
Ghee	4.0	Oil and condiments	17.9
Vegetables	10.8	Miscellaneous	2.0
		Total	100.0

After the closure of the relief centres it was decided to pay honorarium to the members of the staff of the institutions who supervised and directed the administration of the relief centres. The honorarium was fixed at 10 Ps. per week per inmate. For the purpose of calculations the number of inmates on each Sunday was taken into account.

The total number of meal-days on the relief centres worked approximately to 25,78,000. The expenditure per person per week therefore came to 4.52 rupees, i. e. 65 paise per day. The distribution of this amount on different items is shown in Table 4.10.

Table 4.10 : TOTAL EXPENDITURE INCURRED PER PERSON ON DIFFERENT ITEMS

<i>Item</i>	<i>Weekly expenditure per person Rs.</i>	<i>Percentage share</i>
Cereals	1.03	22.8
Milk	0.57	12.6
Other Food	1.14	25.2
Total Food	2.74	60.6
Services	1.07	23.7
Fuel	0.50	11.1
Miscellaneous	0.21	4.6
Total non-food	1.78	39.4
Grand total	4.52	100.0

The premises and the buildings of schools and colleges were considerably spoiled, as the buildings were used for residential purposes. A lump sum varying from 200 to 1000 rupees, depending upon the size of the centre, was granted by the government to the various institutions to cover the charges of cleaning, painting and repairing the premises after the closure of relief centres.

Organization of relief centres

The responsibility of the administration of the relief centres was voluntarily shouldered by the staff-members of schools and colleges. A variety of tasks devolved upon the management, viz., purchasing the requisite articles, making arrangements for preparation and distribution of meals, maintaining general discipline, settling petty disputes and preventing mischief and outside interference, explaining various government orders, stipulations and decisions, and distribution of clothing and other articles received as donations. On some centres formation of committees of the inmates to look after distribution of donated articles, sanitation, etc., was also encouraged. Teachers and staff-members were generally assisted by students and other volunteers.

In order to obtain information regarding the management of the centres and the problems faced by the organizers, 30 centres located in different parts of the city were visited, and persons in charge of management were interviewed. It was possible to obtain the necessary information from the organizers of 24 centres.

When broad response of the organizers of the 24 centres with respect to the behaviour of the inmates was examined, it was found that organizers of 13 centres reported that they encountered some difficulties, organizers of nine centres reported the working to be smooth and two organizers did not express any opinion.

The organizers reported that lack of discipline and failure to obey rules laid down by the organizers, rendered the organizational work difficult. In addition the inmates were reported to be non-co-operative—unwilling to assist in any work, unless paid for, partly because of their unwillingness to work and partly due to their attitude to expect service as a matter of right. Misbehaviour reported on the part of the inmates included arrogance, abuse, gambling, and in two cases even illicit distillation of liquor. In addition there were complaints about unhygienic behaviour. Lack of water and inadequate sanitary facilities made it all the more difficult to maintain cleanliness at the centres.

Among the 13 organizers who reported the above difficulties, the organizers at one centre encountered all the four problems mentioned above, three others were faced with three of the four problems and the remaining eight mentioned one or two of these problems. In all, unhygienic behaviour and uncleanness were reported in as many as nine cases, while non-co-operative behaviour, disobedient behaviour and misbehaviour were reported in four or five cases each. Organizers from two of these centres opined that the behaviour of the inmates must be excused as they were greatly perturbed due to serious calamity. Another organizer mentioned that quarrelling and other misbehaviour was inevitable as the inmates were idle due to closure of schools and some of the offices and workshops.

The organizers of nine centres stated that they faced little difficulty in organizing the relief centres. Understanding and mutual co-operation were reported

especially when the organizers and the inmates belonged to the same locality or had previous contacts such as teacher-parents or when both belonged to the same social group. Organizers of one centre opined that despite the multifarious difficulties, the inmates showed understanding of the situation and the centre could function smoothly. There was so much peace and concord on two centres, that entertainment items such as *bhajan* circles, and film-shows could be organized, and children were provided with games and books. On another centre conflicts and quarrels were avoided by handing over a part of the responsibility of management to the committees of the inmates themselves.

Interference from outside was another source of trouble. Organizers from five centres emphasized the recurrence of troubles mainly from political workers who tried to organize meetings of the inmates within the centre or sometimes insisted on distributing aid personally ignoring the normal arrangements.

Organizers of three centres reported difficulties in the receipt of cloth and other garments to be distributed at the centres. Organizers of another two centres complained that the quota of food-grains was not given regularly. Another four complained about the conflicting and misleading information and directives given by the government officials.

A committee of the heads of the educational institutions was organized by the government to act as liaison and discuss the difficulties in the management. Meetings of this committee were few and far between and it was not known whether it could do any effective work. A citizens' committee was also appointed to redress the grievances of the inmates. It visited the centres periodically and tried to explain various government measures to the affected and smoothen the relations between the inmates and the management.

In view of the adverse circumstances, the helpless and desparate condition of the inmates of the centre, lack of experience of emergency work on the part of the organizers, outside interference rather than assistance, and deficiency of all the necessities of life including water, the functioning of most of the relief centres could be considered smooth. Moreover, the cost of organizing the relief centres could also be kept relatively low, as the provision of shelter was made almost without any charge, and the supervisory and some other services were available at a nominal cost.

Other measures of relief

The news of disaster in Poona brought in a stream of help from all over Maharashtra as well as from outside the state. From 14th July 1961 cash donations from individuals and various private organizations as well as from government and semi-government bodies started flowing in the city. A non-official body, viz., Chief Minister's Relief Fund Committee, was therefore set up to receive and regulate the distribution of cash donations.

The first official measure in the administration of relief and aid was the recognition of relief and kitchen centres. This made the centres eligible to receive

food-grains distributed by the government from the donated stocks. For the families staying outside the relief centres, cash doles were disbursed. A scheme of distribution of aid for occupational rehabilitation and for repair and reconstruction of houses was also announced. A committee consisting of the secretaries of the various government departments examined and approved all the schemes mentioned above. In addition they recommended implementation of schemes of granting aid to educational and social institutions, grant of pensions to families who had lost their earning members and grant of miscellaneous relief. A number of socio-cultural and charitable organizations participated in the relief work. They collected a variety of commodities and distributed them among the affected families. An attempt is made in this chapter to consider the various schemes of aid undertaken by the government, the Chief Minister's Relief Fund Committee and other agencies.

*The Schemes undertaken by the Government in Collaboration
with the C. M. Fund Committee*

One may broadly divide the schemes of distribution of aid into three types, (i) Aid to families for their general rehabilitation; (ii) to traders, artisans, and small industrialists, for their economic rehabilitation; and (iii) to various institutions for resuming their normal activities.

Aid to families

(1) *Distribution of food-grains* : The families who took resort to the relief centres were being provided with meals, but the rest of the affected families were finding it extremely difficult to arrange for their daily necessities. All the edible articles in their houses were wasted and many of the families did not even have ready cash to buy the immediate necessities. The urgent need therefore was the provision of food-grains to the affected families residing outside the centres.

Arrangements for the distribution of food-grains were made through citizen's committees which were set up voluntarily throughout the affected part of the city, immediately after the disaster. Six such committees consisting of prominent citizens, and social and political workers, were set up in different parts of the city : (1) zonal committee for Mangalwar-Somwar wards and Suburban areas; (2) Kasba-Budhwar-Raviwar-Ganesh wards; (3) Sadashiv ward; (4) Shaniwar and Narayan wards; (5) Erandawana ward; and (6) Shivajinagar ward.

The committees were recognized by the government as representative bodies and they acted as a sort of liaison between the official bodies and the affected families. They helped prepare lists of affected families by recording names and other details about the affected families. Verification of these lists was carried out by some committees by actual visits to the place of residence of the affected

families. Other committees consulted some persons acquainted with the families living in the particular areas. The committees submitted to the government an estimate of the number of affected families in the area, and on this basis requisite quantity of food-grains was sent to the zonal committees by the government. The quota was fixed at five seers of cereals for a person above six years of age and for those below that age limit, 2.5 seers. The quota was considered sufficient for about 10 days, i. e. enough to tide over the initial difficult period. Normally *jowar*, wheat and rice were supplied from the donated stocks in the proportion of 3 : 1 : 1. Later *atta* was also distributed. The amount of grains utilized was as follows: 823 bags of rice, 691 bags of wheat, 1154 bags of *jowar*, and 112 bags of *atta*. It was estimated that about 9500 families from outside the relief centres received food-grains under this scheme. On an average 24 seers of cereals were received by each family.

(2) *Distribution of cash-dole* : Distribution of cash-dole was undertaken to enable the affected families to obtain the immediate necessities. The amount of cash-dole sanctioned was related to the number of persons in a family with a maximum limit of 50 rupees per family. It was decided to disburse cash-dole only among such families who did not take resort to the relief centre where the minimum necessities of life were already provided free of charge.

Before receiving the cash-dole the affected families were required to fill in an application form giving details about their residential address, prior to 12th July 1961, family composition, the loss inflicted, etc. The residential address given by the family was checked with the list of affected houses prepared by the government officials. The cash-dole was distributed mainly from 14th July to the beginning of September 1961. The total cash-dole distributed amounted to 6,12,805 rupees, and an estimated number of 16450 families benefited by this scheme.

(3) *Distribution of clothing* : Clothing was another immediate need of a large number of families. The distribution of donated cloth and clothes, new as well as old, began from 18th July on the relief centres. Distribution of clothing as well as utensils was undertaken by the government in collaboration with the C. M. Fund. It was decided to give cloth enough for one unit of apparel to each individual member of the family. In addition a cotton blanket, a carpet or a coarse woollen blanket (*ghongdi*) was to be given per person.

The following items of clothing were purchased from the amounts sanctioned by the government and the C. M. Fund. 13,500 blankets, 24,022 carpets, 5,400 sarees, 51,157 yards of long cloth, 9,531 yards of chintz, 10,330 yards of khaki cloth, 2,560 *chaddars* and 6,440 dhotis. Government provided 2,93,318 rupees and the C. M. Fund 16,542 rupees towards the purchases of these articles. All these articles were distributed to families residing at relief centres.

As the quantity of cloth purchased was not sufficient to meet the total requirements, payment was made in cash to most of the families residing outside

the relief centre according to the following scale :—

Male adult above 12 years	Rs. 15.00
Female adult above 12 years	Rs. 18.00
Non-adult (male) between 3 to 12 years	Rs. 12.00
Non-adult (female) between 3 to 12 years	Rs. 12.00
Infant below 3 years	Rs. 2.00

The government contributed 10 rupees per head for adults, and two rupees per head for infants; the rest of the expenses were met from the C. M. Fund.

(4) *Distribution of Utensils* : Initially it was decided to supply certain utensils to each of the affected families, viz., two pots, three plates, three glasses, three bowls, two spoons, one bucket, a rolling pin and a flat. However, it was not possible to procure utensils on such a large scale within a short period. Actually only a few of the affected families received utensils and the rest of the families received cash in lieu of utensils according to the following scale:

Family with not more than 3 members	Rs. 30.00
Family with 4 members	Rs. 35.00
Family with 5 members	Rs. 40.00
Family with 6 members	Rs. 45.00
Family with 7 or more members	Rs. 50.00

Government sanctioned five rupees per head for utensils and the balance was met from the C. M. Fund.

The official total figure of the number of families receiving aid for clothing and utensils was 26,264. Of these 19,431 families were shown as residing outside the relief centres, and 6,833 families as living at the relief centres. The total expenditure incurred by the government and the C. M. Fund Committee for the provision of clothing and utensils distributed among the families staying outside the centres was as follows :

<i>Clothing</i>		<i>Utensils</i>	
<i>Government</i>	<i>C. M. Fund</i>	<i>Government</i>	<i>C. M. Fund</i>
Rs. 4,14,088	2,60,730	Rs. 1,83,058	2,31,121

The amount spent for the distribution of utensils or cash in lieu, for the families living at the centres was 1,56,883 rupees. The utensils were given to these families at the time of the closure of the centres. The total amount spent by the government and the C. M. Fund Committee on the distribution of clothing and utensils to the total affected families worked to 15,75,740 rupees; the government contributed 62 per cent of this amount.

(5) *Distribution of miscellaneous aid* : For purchasing miscellaneous domestic articles additional amount of cash was distributed. It was given to the affected families whose monthly income did not exceed 500 rupees per month. An amount equal to one month's income of the family or 100 rupees, whichever was less, was given to each family. The amount was to be adjusted against the aid received from other sources. The total number of families who received this aid was reported to be 26,206 of which 19,167 were residing outside the centres. The total aid distributed was 16,36,456 rupees, of which 4,30,574 rupees were distributed to families residing at the relief centres.

(6) *Scheme of pensions* : A scheme of pensions was put into operation for the families who were dependent upon income from the property which was lost in the calamity and for the families who were left without any means of subsistence due to the loss of life of the earning members in the family. In each case a pension up to 50 rupees per month for a period not exceeding 10 years was sanctioned by the government. Pensions were granted to 80 families involving an expenditure of 30,876 rupees up to August 1962. Government also decided to provide free education to the children of the families receiving pensions.

The C. M. Fund Committee also sanctioned cash grants to families who lost some of their family members in the calamity. One hundred rupees were granted per survivor if an earning member was lost, and 50 rupees per survivor for the loss of a non-earning member. A total amount of 12,000 rupees was sanctioned for 29 applicant families.

(7) *Educational assistance* : Assistance to students was granted through the C. M. Fund. It was granted with a view to helping students towards payment of tuition and examination fees, purchases of books, instruments and stationery. A student was considered eligible to receive aid if his parents or guardians suffered material loss of property in the disaster and their monthly income did not exceed 500 rupees. Students from the recognized as well as non-recognized educational institutions were covered under this scheme. Committees of school and college authorities were appointed to assess the number of affected students, and their needs. The amounts were sanctioned to the respective institutions on the basis of the estimates submitted by these committees. Five rupees were sanctioned to each affected student for stationery and instruments. Amount sanctioned for purchase of books varied from 10 to 20 rupees, according to standards. It was reported that 24,770 affected students benefited by this scheme, and the total expenditure incurred on this account was 9,41,506 rupees.

About 71 per cent of the assistance was towards the payment of school and college fees. Another four per cent was used for the payment of examination fees of college students and students in the S. S. C. class. The rest was utilized for purchase of books, stationery and instruments. The average amount of

fees paid per college student was 130 rupees, and for high school student it was 50 rupees. For books and stationery the average amounts were 23 rupees and 12 rupees respectively.

In the Panshet disaster many renowned scholars, writers and research workers from Poona suffered irreparable losses. With a view to helping them to buy various published documents and other material lost in the catastrophe, the Maharashtra Sahitya Parishad prepared a list of affected scholars, writers and artists and made representation to government for grant of aid. They were granted relief through the C. M. Fund. Twenty-seven persons including 14 research scholars, six writers, and seven artists, were granted a total assistance of 44,300 rupees. The distribution of the recipients according to amount of assistance is given in Table 4.11.

Table 4.11 : DISTRIBUTION OF SCHOLARS AND ARTISTS ACCORDING TO AMOUNT OF ASSISTANCE

<i>Amount of assistance</i> Rs.	<i>No. of recipients</i>
Up to — 1000	12
1001 — 2000	11
2001 — 3000	1
3001 — 4000	1
4001 — 5000	1
5001 and more	1
Total	27

Certain cultural associations invited donations for grant of assistance to writers and artists. A sum of 10,200 rupees was distributed among 36 persons like professors (16), journalists (9) writers, artists, etc. (2 to 4 each). A sum ranging from 200 to 500 rupees was given per person, depending upon the loss reported.

A number of institutions, public as well as private, suffered heavy damage in the catastrophe. It was decided to grant them relief through the C.M. Fund after considering the extent of loss they suffered. Certain amount, depending upon the loss, was initially sanctioned from the C. M. Fund, and it was supplemented, if necessary, through grants from the government.

The type and number of institutions and the amount of aid received by them is shown in Table 4.12.

Table 4-12 : AMOUNT OF AID RECEIVED BY VARIOUS INSTITUTIONS

<i>Type of institution</i>	<i>No. of recipients</i>	<i>Total amount of aid (Rs.)</i>
Temples	73	1,35,512
Mosques	13	25,335
Rescue houses	2	15,000
Hospital	1	36,000
Schools and colleges	10	48,200
Technical schools	2	12,500
Coaching classes	14	7,250
Music and art circles	5	1,200
Cultural trusts	4	13,000
Book house	1	15,000
Gymnasia & clubs, libraries	39	21,327
Total	164	3,30,324

In the case of temples, the amount of aid was about 18 per cent of the reported loss, while the aid worked out to about 11 per cent of the total loss in the case of schools and colleges. The loss suffered by coaching classes being small in magnitude, aid amounted to 30 per cent of the loss. Amount of aid made up for 42 per cent of the loss in the case of rescue homes. The percentage of aid was about 7 of the loss in the case of Gymnasia, clubs, etc.

Some of the institutions required additional funds, and a total of 46,000 rupees was granted by the government to some of these institutions. In addition two publishing houses (not entirely commercial in nature) were granted respectively 16,000 rupees and 10,000 rupees. The C. M. Fund Committee granted 15,000 rupees to a social work organization for organizing work centres where women from affected families were to be employed. It also allocated 60,000 rupees for building a hospital in one of the colonies of the affected people, in collaboration with one of the social clubs from Poona.

Non-government efforts

A number of social, charitable and political organizations organized their own cadres for distribution of aid. However, only a few organizations could supply details regarding distribution of aid and the number of recipient families. In many cases organizations received donations in kind. In such cases the value was estimated by imputing current prices to the quantities distributed.

It was possible to collect information from eight charitable organizations, four political parties, six social organizations, three special private funds, four merchants' associations from Poona, and two charitable trusts from Bombay. In addition a number of traders and philanthropists also distributed relief on individual basis. However, it was not possible to assess the extent of aid distributed in this form.

Aid distributed by various agencies was in the form of —

- (1) supply of cooked food at the kitchen centres,
- (2) distribution of cash, cloth, grains, utensils, implements, medicine, and milk powder,
- (3) school uniforms, books, stationery, and opening of book-bank,
- (4) arrangements with banks for grant of loan towards economic rehabilitation,
- (5) providing temporary residential accommodation,
- (6) organizing work centre.

Thirteen kitchen centres were managed by various associations; three of them were run without government help. One student welfare association provided free meals to about 60 affected students for about a month.

Statistics furnished by the associations show that 1,86,800 seers of cereals were distributed from the donated stocks and purchases. Out of these, 12,200 seers were donated by persons from outside Poona. The total estimated value of cereals distributed was 88,500 rupees. Edible articles like biscuits, tinned food and milk powder worth about 54,800 rupees were also distributed.

Cloth and items of clothing worth about 2,14,700 rupees were distributed to the affected families by the organizations from Poona. About 10,000 families received cloth or articles of clothing distributed. A charitable association from Bombay distributed cloth to the affected families through the zonal committees. Each family was given at least one dhoti, three yards of long cloth, three yards of shirting, one blouse piece, one saree and one *chaddar*. In all 9,670 yards of poplin, 18,395 yards of long cloth, 5,637 dhotis, 42,174 yards of voile and 4,457 blankets and *chaddars* were distributed. The estimated value of the cloth was 1,26,982 rupees, and about 3,900 families benefited by this scheme. In addition, this association distributed brass utensils worth 9,872 rupees.

Old clothes were also distributed on a massive scale particularly at the relief centres. It was reported that about two lakh pieces of clothing were distributed to the affected families.

One concern from Bombay distributed packages containing the essentials like a set of articles of clothing, footwear, utensils, etc. One-thousand-one-hundred-eighteen families received aid in this form. The total amount spent on the package-aid scheme was 1,77,700 rupees, of which about 75 per cent

Table 4.13 : AMOUNT OF AID DISTRIBUTED BY PRIVATE ORGANIZATIONS ACCORDING TO AGENCY AND TYPE OF AID

Type of organization	No. of organizations	Food grains (Rs.)	Other edible articles (Rs.)	Clothes or cloth (Rs.)	Utensils (Rs.)	Educational (Rs.)	Cash (Rs.)	Miscellaneous (Rs.)	Total (Rs.)	Percentage to total (Rs.)	Average aid (Rs.)
Charitable organizations	8	55,400	43,900	44,600	17,400	2,000	41,600	—	2,04,900	19.68	25,612.50
Political parties	4	5,600	3,400	10,200	24,300	6,000	12,400	3,000	64,900	6.23	16,225.00
Social organizations	6	4,800	3,000	54,300	9,800	9,500	16,900	7,000	1,05,300	10.11	17,550.00
Special funds	3	10,000	4,500	1,01,600	54,200	8,300	12,500	4,600	1,95,700	18.79	65,233.33
Associations of employees and merchants	4	12,700	—	4,000	—	—	1,09,800	200	1,26,700	12.17	31,675.00
All organizations from Poona	25	88,500	54,800	2,14,700	1,05,700	25,800	1,93,200	14,800	6,97,500	66.98	27,900.00
Organizations from Bombay	2	—	—	2,56,810	48,966	—	29,305	8,668	3,43,749	33.02	1,71,874.50
Grand Total	27	88,500	54,800	4,71,510	1,54,666	25,800	2,22,505	23,468	10,41,249	—	38,564.77
Percentage to Total	—	8.50	5.26	45.28	14.86	2.48	21.37	2.25	—	100.00	—

was on clothing. In addition 29,305 rupees were distributed in cash by this organization. Sets of utensils were also distributed by other organizations. Utensils worth 1,05,700 rupees were purchased by these organizations out of the donations collected. About 5,000 families received aid in this form.

Assistance in the form of miscellaneous articles such as medicines, cosmetics, footwear, hurricane lamps, brooms, etc., distributed by the private organizations, amounted to 14,800 rupees. Besides, assistance was given to students in the form of books, stationery, etc. Estimated value of these articles was 13,000 rupees. A book-bank was opened with purchases of books worth 12,800 rupees. Some of the organizations distributed cash grants amounting to 1,93,200 rupees to priests, artists and professionals.

The total amount of aid distributed was to the tune of 10,41,250 rupees (see Table 4.13) of which 33 per cent was contributed by two prominent trusts from Bombay and the rest by some 25 organizations from Poona. The charitable associations and the special relief funds organized in Poona, each accounted for about 20 per cent of the total amount, while the share of the political parties was 6.2 per cent. About 45 per cent was spent on cloth, 21 per cent was distributed in cash, and about 15 per cent was spent on utensils.

Procedures of inviting applications and distributing aid differed between organizations. Political parties generally relied upon local knowledge of their workers and distributed aid to families recommended by them. Charitable organizations depended upon the knowledge of their members, office bearers and volunteers. Social organizations either distributed aid to a particular group of affected persons such as students, or distributed *en masse* to whomsoever approached them. They enquired into the address just to see that the previous place of residence was within the affected zone. One organization sent volunteers to affected parts to make a list of affected families, another asked for recommendations from its office-bearers and prominent citizens, while still another carried parcels of aid to affected areas and distributed articles on the spot.

Organizations collected donations from their members and sympathisers in and outside Poona. Some utilized towards relief, the funds which were earmarked for other purposes such as meetings and gatherings. Two processions were carried out in Bombay to collect donations. Aid from abroad was also received by two charitable organizations.

There was multiplicity of distributive agencies with little co-ordination in their efforts. Inadequate procedures of verification of affected families were reported to have at times resulted in maldistribution or even misuse of the aid granted. Lack of publicity was another handicap from which many schemes of relief suffered. Particularly the schemes sponsored by agencies from outside Poona were less known. As a result of this it was not often possible to give highest priority to the most needy families.

Table 4.14 † AMOUNT OF TOTAL AID DISTRIBUTED, BY TYPE OF AID AND AGENCY

Agency	Cooked food (Rs.)	Food grains (Rs.)	Other edible articles (Rs.)	Clothes or cloth (Rs.)	Utensils (Rs.)	Educa-tion (Rs.)	Cash (Rs.)	Misce-llaneous (Rs.)	Pension (Rs.)	Total (Rs.)	Perce-ntage to total (Rs.)
State Government	—	76,500	4,22,400	7,07,406	2,72,192	—	22,49,261	—	30,876	37,58,635	51.11
C. M. Fund	—	—	—	2,77,272	3,18,871	9,85,800	—	15,125	12,000	16,09,068	21.87
Other funds	81,500	88,500	54,800	4,71,510	1,54,666	25,800	2,22,505	23,468	—	11,22,749	15.27
Donations received by the Government	—	4,70,000	2,10,000	1,84,000	—	—	—	—	—	8,64,000	11.75
Subtotal	81,500	5,58,500	2,64,800	9,32,782	4,73,537	10,11,600	2,22,505	38,593	12,000	35,95,817	48.89
Grand total	81,500	6,35,000	6,87,200	16,40,188	7,45,729	10,11,600	24,71,766	38,593	42,876	73,54,452	—
Percentage to total	1.11	8.63	9.34	22.31	10.14	13.76	33.61	0.52	0.58	—	100.00

Besides the aid sponsored by well-known organizations, another source which was of immense value to the affected people must be mentioned. The friends and relatives of the affected families extended invaluable assistance to them. A large number of families were provided with shelter and food by their friends and relatives for a period of about a month or even more. In addition, they were also provided with essential articles of food and clothing or cash, on individual basis. It was impossible to reach all these individuals and know the extent of such assistance. It was not even possible to estimate their number. The information relating to assistance presented above, thus, excludes the help rendered on individual basis, which was believed to be considerable.

Now one may summarize the total amount of aid received by the affected families (*vide* Table 4·14). The total aid distributed amounted to 73·5 lakh rupees, half of which was contributed by the government, and half by various private funds and institutions. The average amount of aid received per family worked to about 275 rupees, which amounted to about 25 per cent of the average loss of the total affected families. This amount does not include help in the form of board and lodging received by affected families who stayed with their relatives and friends.

The adequacy of aid depends on the nature and magnitude of loss. Families living from hand to mouth, with no savings and assets, lost mainly their personal effects. Aid of 275 rupees was adequate for such a family for the purchase of essential personal goods. On the other hand, a section of the affected families lost most of their assets built up out of their savings over a number of years. In such cases the loss amounted to 2,000 rupees or more per family. With the amount of aid distributed they were enabled to meet the temporary difficulties, but it was impossible to restore their original conditions of living particularly when their owned houses—an invaluable asset and a source of income—were lost. Family responsibilities such as higher education of their children or any other commitments made earlier suddenly became burdensome as they had no assets to fall back to. The future plans and aspirations of these families were disrupted. As it was not possible to render help to the tune of their loss, it became an irreparable loss.

Occupational rehabilitation

A number of schemes were envisaged by the government and the Chief Minister's Fund as well as by representative associations of traders and banks, to assist in the occupational rehabilitation of the affected artisans, traders, professionals and industrialists.

Assistance through Chief Minister's Fund

Individuals who needed less than 200 rupees were given cash grants from the C. M. Fund. The affected artisans and businessmen were asked to submit

applications in a prescribed form to become eligible for the grant of aid. The applications asked for information regarding name and address of the applicant, nature of business, annual turnover and profit, type of implements to be replaced, etc. Information relating to the amount of loan required, the period in which it could be repaid, and the number of instalments for repayment, was asked for. The Directorate of Industries, Government of Maharashtra, opened a special branch in Poona to accept and process the applications. The Directorate scrutinized the applications, assessed the damage inflicted in the disaster by spot enquiries, and recommended the amount of grant in each case. These grants were particularly meant for artisans, small traders, and petty shopkeepers, who were not able to obtain loans from banks as they could not offer any security.

The aid programme covered 74 different types of vocations, and benefited 3,107 artisans and small traders. The total amount disbursed was 3,71,005 rupees. The following are the more important beneficiaries : broom-makers, rope-makers, washermen, tailors, barbers, cobblers, masons, carpenters and blacksmiths. The average assistance received was 120 rupees. This amounted on an average to about 88 per cent of their total loss.

Assistance through Government

Cash grants were sanctioned through Directorate of Industries when the requirement was between Rs. 200 and Rs. 500 in each case. Three hundred and thirty-two traders and artisans were given cash to the tune of 1,21,850 rupees, the average amount of assistance being 367 rupees. Applications for this aid were accepted in the office of the Additional Industries Commissioner. The work of scrutiny, spot enquiry, etc., was carried out by revenue officers.

Under State Aid to Industries Rules, affected businessmen were granted loans by government through Directorate of Industries. Forty-four traders and professionals received total loans of 1,11,115 rupees under this scheme. The recipients included cycle-dealers, painters, tailors, etc. Total subsidies granted by the government amounted to 28,000 rupees. The average loan amount was 1,888 rupees, and the average subsidy was 636 rupees, per individual.

Cash and loan assistance was offered by the government to certain small-scale industrial units on recommendation of the Directorate of Industries, and the amounts were disbursed through the Directorate. Two printing presses received cash grants of 750 rupees each. Six other units, viz., bakeries, manufacturers of *bidi* and foodstuff, and foundries, received loan assistance totalling 13,700 rupees. Out of this loan amount 3,875 rupees were to be treated as subsidy according to government stipulations. While granting aid the maximum amount required by an applicant was considered as a ceiling. The actual requirements together with the recommendations made by government inspectors as well as the aid received (if any) from other sources as reported by the applicant were taken into account while determining the amount of grant.

Assistance through banks

Loan assistance was also arranged through commercial and co-operative banks. The affected businessmen were not in a position to offer security or collateral according to bank regulations pertaining to normal transactions. The government and some other agencies therefore made the necessary arrangements with the banks. The co-operative banks undertook to provide loans not exceeding 3,000 rupees in each case. The ceiling for the commercial banks was 10,000 rupees in each case. Four co-operative banks, a central co-operative bank and a commercial bank participated in the scheme of loan assistance.

Four urban co-operative banks instituted their own schemes of loan assistance. Preference was given to depositors of the individual banks. Under this scheme 175 affected businessmen received loans totalling 83,786 rupees.

Some business associations from Bombay placed a deposit of 1,25,000 rupees with urban co-operative banks in Poona at a rate of five per cent per annum. It was arranged to grant loans against this amount. Under this scheme, 290 traders received a total loan assistance of 5,44,840 rupees from four urban co-operative banks. The loss, if any, sustained by the banks was first to be met from the interest on the risk-fund and later on from the amount of risk-fund itself.

The Directorate of Industries also arranged a scheme of loan assistance with the co-operative banks. Under this scheme minimum amount of loan was to be 500 rupees, the maximum being 5,000 rupees. Government provided a two-third guarantee cover for the loans. Loans were granted to businessmen recommended by the Directorate. Under this scheme, 2,54,675 rupees were given as loans by four urban co-operative banks, to 144 businessmen.

The Chief Minister's Fund Committee proposed a scheme of loan assistance for traders who did not receive loans under the schemes described above. Loans ranging from 500 to 3,000 rupees were arranged with urban co-operative banks. The Fund guaranteed two thirds of the total loss, if any, sustained by the banks. A sum of three lakh rupees was sanctioned by the Fund as security deposit for the grant of these loans. Each bank participating in this scheme received as security deposit a sum equivalent to 25 per cent of the total loans granted by it. An interest at four per cent was to be paid on the amount of deposit. Under this scheme, 76 traders received loans totalling 1,27,350 rupees. Arrangements were also made with the district central co-operative bank to grant loans to affected agriculturists and non-agriculturists residing outside Poona by the C. M. Fund Committee.

Funds required by the co-operative banks for the grant of loans were furnished by the State Co-operative Bank, through the Poona Central Co-operative Bank. In addition the State Co-operative Bank agreed to bear 50 per cent of the net loss, if any, while the Poona Central Co-operative Bank agreed to bear the 25 per cent of the remainder of the loss. The government agreed to bear the

difference between the market rate of interest (five and half per cent) and the rate charged by co-operative banks (viz. seven per cent).

The number of recipients of loans under different schemes and the total amount of loans granted are summarized in Table 4. 15.

Table 4.15 : AMOUNT OF LOANS GRANTED BY CO-OPERATIVE BANKS BY DIFFERENT SCHEMES

<i>Schemes sponsored by</i>	<i>No. of recipients</i>	<i>Amount of loan Rs.</i>
Co-operative Banks	175	83786
Business Associations	290	544840
Director of Industries	144	254675
C. M. Fund Committee	76	127350
Total	685	1010651

In all 685 businessmen and professionals received loans from co-operative banks, the total amount lent being 10,10,651 rupees. The average loan given amounted to 1,475 rupees which was about 40 per cent of the average loss reported by these businessmen and professionals.

Schemes of commercial bank

The commercial bank under its own scheme granted loans to businessmen, giving preference to the depositors of the bank. In all 203 traders received an aggregate loan of 1,22,200 rupees under this scheme. The C. M. Fund Committee placed with this bank a sum of 5,50,000 rupees for a period of five years for extending loans against this amount and agreed to bear two thirds of the total loss, if any, sustained by the bank. Under this scheme, 367 traders received loans totalling 19,59,200 rupees. Maharashtra Industrial and Commercial Rehabilitation Fund, organized by some representative organizations of commerce and industry, placed an amount of 1,30,380 rupees with the bank, against which loans were to be granted to the traders recommended by the representative associations. The bank granted loans, under this scheme, aggregating 6,51,400 rupees to 194 businessmen. Similar arrangements with the bank were made by two charity organizations which deposited a total sum of 72,000 rupees with the bank. Against this sum, loans totalling 2,94,000 rupees were granted by the bank to 125 traders recommended by the business organizations.

The number of recipients of loan under different schemes and the total amount of credit granted are presented in Table 4.16.

Table 4.16 : AMOUNT OF LOANS GRANTED BY COMMERCIAL BANK BY DIFFERENT SCHEMES.

<i>Schemes sponsored by</i>	<i>No. of Recipients</i>	<i>Amount of loan (Rs.)</i>
Commercial bank	203	12,22,000
C. M. Fund Committee	367	19,59,200
M. I. C. R. Fund	194	6,51,400
Charity organizations	125	2,94,000
Total	889	41,26,600

The commercial bank sanctioned a total credit of 41,26,600 rupees under various schemes. The total recipients were 889, of whom 307 were artisans and craftsmen, and 582 were traders and shopkeepers.

In the loan applications submitted by the traders to the bank, the amount of loss was indicated. The officials of the bank carried out spot-inspection to ascertain the loss. The estimated average loss worked to 7,100 rupees per trader, and the average loan granted was 4,640 rupees. The average loan thus came to about 65 per cent of the average loss.

Terms governing grant of loans did not differ considerably between different schemes. The repayment period varied between three and five years. Repayment was to commence generally after the lapse of three months. In some cases the applicants were allowed to begin repayment after six or twelve months. The rate of interest for guaranteed loans was five and half per cent per annum and for all other loans it was six per cent. The loans were generally granted against a promissory note and a surety. Wherever possible hypothecation of stocks of goods and title-deeds of property were taken as collateral. The government agreed to grant subsidy not exceeding 1000 rupees in each case. The amount of subsidy was credited to the banks to be charged against the account of the debtor as repayment of the principal.

Assistance through State Finance Corporation

Loans exceeding 10,000 rupees but not exceeding 1,00,000 rupees were arranged with the State Finance Corporation. The Corporation granted loans on the recommendation of the Directorate of Industries. Government granted a subsidy not exceeding 1,000 rupees in each case.

Sixty-six applicants were recommended by the Directorate to the Corporation. The applications were scrutinized and extent of damage was ascertained by visiting the site of the establishment. By March 1962, loans to the tune of

16,73,000 rupees were sanctioned to 53 applicants, the average amount sanctioned per applicant being about 31,500 rupees. The types of industrial units and the amount (loan and aid) sanctioned to these by the corporation, are shown in Table 4.17.

It was not possible to collect information regarding utilization and adequacy of the loans granted to the affected businessmen. However, on enquiries made with the banks it was learnt that they experienced little difficulties in the recovery of the loans. Of the four co-operative banks who granted loans, only

Table 4.17 : LOANS SANCTIONED BY MAHARASHTRA STATE FINANCE CORPORATION TO FLOOD-AFFECTED SMALL-SCALE UNITS IN POONA

<i>Type of industry</i>	<i>No. of units</i>	<i>Amount sanctioned (inclusive of subsidy) (Rs.)</i>	<i>Average amount sanctioned (Rs.)</i>
Metal products	8	298000	37250
Chemicals	3	68000	22666
Electrical machinery	2	36000	18000
Furniture	3	97500	32500
Printing	13	421000	32385
Miscellaneous	24	752500	31354
Total	53	1673000	31566

two reported default in repayment of debts on the part of eight per cent and 16 per cent of the debtors respectively as on June 1964. Even these banks were confident of full recoveries on the expiry of the whole term of the loan. It is worth while to note that none of these banks reported existence of bad or doubtful debts as on June 1964.

The commercial bank reported that as on December 1964, 11 per cent of the total number of debtors were in default. The bank considered only three per cent of the defaulting cases as doubtful. These businessmen repaid about 16 per cent of the total principal and interest and the remaining amount was considered as bad debt by the bank. The amount involved was about a lakh of rupees.

As majority of debtors were regular in the repayment of loans, there is a ground to believe that the loan assistance proved of considerable value towards the rehabilitation of the businessmen and the industrial establishments.

Supply of material

So far, the details of financial assistance have been considered. For speedy utilization of the funds, so as to enable the concern to reopen its business it was necessary to make provision for supply of various materials. For example, arrangement for supply of bricks, cement, steel-sheets, etc., had to be made for those who suffered heavy damages to their buildings. In case the premises were coming within the flood-line, arrangements for alternative sites were necessary.

Stocks of bricks were frozen by the government and were released to the affected people after assessing their actual need. Arrangements were also made for the release of cement and steel on a priority basis to affected businessmen. Certain types of raw material were speedily procured, e. g., 18 tons of newsprint was made available to newspapers whose stocks were destroyed.

Loans were granted for repairs and reconstruction of business premises. Government was prepared to grant loans not exceeding 5,000 rupees in each case. The amount was given in two instalments at a rate of five and half per cent per annum. Repayment was to commence after one year after the disbursement of loan amount. Ten applicants were granted loans amounting to 26,500 rupees.

Sales-tax collection was postponed for a time to give traders some respite. The income-tax authorities assessed the damage wrought as a consequence of the calamity and promised consideration while levying the tax.³

Alternative sites were proposed to be allotted to small-scale industrial units whose original premises came within the flood-line. For this purpose 18 acres of land were requisitioned on Satara road. In this area 34 plots were demarcated and 28 industrial sheds of varying sizes were proposed to be built. In addition 62 stalls were proposed to be built in Shukrawar Peth. Rent charges for open plots were fixed at Rs. 12.75 per 100 sq. ft. and for industrial sheds at about Rs. 31 per 100 sq. ft.

It was reported that construction of 26 industrial sheds and 62 artisan stalls began by the beginning of 1962. But a dispute arose over the compensation to be paid to the landowners whose land was requisitioned by the government. As the matter became *sub judice* further development work and allotment was suspended. As regards the artisan stalls it was reported that artisans were not very eager to accept the stalls as the rent was high.

For affected shopkeepers certain space was reserved in the new residential colonies built for the affected families. The space was to be let out to enable the affected merchants to erect stalls for opening the shop.

Private efforts

Non-official agencies also participated in the work of rehabilitation on a

3. *Sampoda*, Mahratta Chamber of Commerce and Industries, Poona, August-September, 1961.

small scale. The arrangements for loans made by private organizations with the banks have already been noted. Assistance in kind and in cash was also made available by certain other institutions to the affected traders and artisans. Implements and other requisites were donated to artisans and traders by some of the organizations. The items distributed included fisherman's nets, weights and measures, petromax, typewriter, loud speakers and amplifiers, musical instruments, tools required by masons, carpenters, electricians, tailors, etc. A charitable association selected some artisan families from a colony of affected people and gave them sewing machines, bicycles and other articles necessary for their trade. One of the political parties rendered help to about 300 artisans and traders in the form of implements. The total assistance rendered amounted to about 10,000 rupees. One of the associations from Bombay also granted loans totalling 40,000 rupees to 13 affected textile merchants in Poona.

Aid to rural areas

Assistance was given to families from rural areas for occupational rehabilitation as several cultivators lost their standing crops, implements and the like, and many suffered damage to the land. Families requiring help up to 500 rupees were given outright grants. Grants were given to 1144 families in all, the average amount being about 100 rupees. For those requiring larger amounts, arrangements were made for extending loans through the District Central Co-operative Bank. For the improvement of land, C. M. Fund extended 50 per cent of the amount required to restore 650 acres of land. The other half was borne by the agriculturists from loans granted by government. The C. M. Fund disbursed 30,000 rupees on this scheme, and 300 families benefited from it. Besides, 24,000 rupees were spent for helping the backward-class families in rural areas to reconstruct their houses.

It may be concluded that the scheme organized by C. M. Fund and merchant associations in collaboration with the banks for making available loans on comparatively easy terms proved to be very valuable to the businessmen, professionals and the agriculturists. The aid amount enabled them to procure new stocks of material and commence their business within a period of about a month after the disaster. These schemes thus made substantial contribution towards occupational rehabilitation.

CHAPTER V

Schemes of Rehabilitation

PROVISION OF HOUSING accommodation to thousands of displaced families was one of the crucial problems arising out of the Panshet calamity. According to the estimate prepared by the Poona Municipal Corporation soon after the disaster, about 1,800 houses were severely damaged, half of which were totally destroyed. Destruction of housing accommodation on such a large scale aggravated the existing housing shortage in the city. Moreover, during the process of redevelopment of the major portion of the devastated area, it was necessary to shift a considerable number of dishoused families to new location so as to avoid the previous state of over-crowding and congestion. The problem of rehousing the displaced families on suitable sites called for comprehensive planning with proper consideration of the future growth of the city as a whole.

With a view to assessing the needs of housing, arising on account of the destruction and the nature of accommodation likely to be in demand, a survey of the damaged houses was launched by the Gokhale Institute. Information relating to the total number of rooms in the damaged structures, the number of rooms damaged and the extent of damage, the number of rooms repaired subsequently, the number of families staying in the damaged houses prior to the disaster and after the disaster, was sought during the survey. Information was obtained as far as possible from the owner of the house or else from some of the tenants.

The field work of the survey of the damaged houses commenced in the first week of December 1961. The investigation was entrusted to eight investigators who worked under the guidance of one supervisor. Repeated visits were often necessary to contact the house-owners. A substantial part of the field work was completed by the end of March 1962. Thereafter certain houses were revisited to verify and check the information obtained.

The list of damaged properties prepared by the Poona Municipal Corporation was used as a reference list for conducting the survey. However, it was found that some of the damaged properties were not included in the list. Necessary additions were made on the spot as the survey proceeded. In all 2,391 structures were covered during the investigation.

Information obtained through the survey was compared with the information available in the latest Property Inspection Books maintained by the Corporation. The information proved useful mainly as a check on the total number of rooms in the house. The names of families residing in a particular structure on 12th July 1961 as recorded in the survey were tallied with the list

of applicants applying for aid. In case of discrepancy, the house was revisited.¹ The work of resurvey was completed by the end of May 1962.

All the houses which required major repairs to the whole structure or to its parts, were included in the survey, whereas the structures which called only for minor repairs were excluded as families from such structures were not displaced. Affected areas on the periphery of the city, viz., parts of Yeravada and Mundhava and the affected hutment colonies were not covered by the investigation. Information in respect of these localities and colonies was obtained by referring to the municipal records. Even though efforts were made to cover each and every affected dwelling, the possibility of a few omissions cannot be ruled out. It is, however, believed that such omissions will not affect the total picture, materially.

The number of damaged structures from different wards is given in Table 5.1.

Table 5.1 : NUMBER OF DAMAGED STRUCTURES ACCORDING TO LOCATION

<i>Ward</i>	<i>No. of damaged structures</i>
Mangalwar	340
Kasba	449
Somwar and other eastern wards*	227
Shaniwar	461
Narayan, Sadashiv	447
Shivajinagar, Erandawana	467
Total :	2,391

* Budhwar, Rawiwar, Ganesh, Nagesh and Nana.

The structures varied considerably in size; it is therefore important to note the number of affected rooms to get an idea of the magnitude of the loss of accommodation. The distribution of houses according to number of rooms is given in Table 5.2.

The total number of rooms in all the affected structures was 23,187; the average number of rooms per structure came to 9.7. Even though all these rooms in the surveyed structures were flooded all were not damaged.² The number of damaged rooms is shown in Table 5.3 according to location and

¹ In certain cases the families filling in the aid-application forms, not covered in the survey, were found to be subtenants or relatives of tenants. In a few cases it was revealed that the families were staying in the damaged house prior to July 1961 and had left the place well before the calamity.

² Damaged rooms include the rooms which collapsed wholly or partially and those which required major repairs.

the post-disaster condition of the structure as a whole. The damaged structures are classified into three groups: the first group includes all the structures which collapsed totally; the second group covers structures in which more than half of the total rooms were damaged; and the third group consists of the remaining damaged structures. The total number of damaged rooms was 18,624 which means that about 80 per cent of the total rooms in the damaged structures were damaged. The largest number of damaged rooms was found in Shaniwar followed by Narayan-Sadashiv and Kasba wards.

Table 5.2 : DISTRIBUTION OF DAMAGED HOUSES ACCORDING TO SIZE AND LOCATION

Ward	No. of rooms in the house				All houses
	1-5	6-10	11-15	16 +	
Mangalwar	206	76	37	21	340
Kasba	161	173	57	58	449
Somwar and other eastern wards	65	78	45	39	227
Shaniwar	100	117	97	147	461
Narayan-Sadashiv	128	147	83	89	447
Shivajinagar- Erandawana	240	138	49	40	467
Number of houses	900	729	368	394	2,391
Percentage of houses	37.64	30.49	15.39	16.48	100.00

The total number of families residing in the damaged houses till 12th July 1961, was found to be 14,167. The distribution of these families, according to number of rooms occupied is given in Table 5.4. As many as 63 per cent of the families were residing in one-room tenements, 24 per cent in two-room tenements, and only 13 per cent of the families had more than two rooms. The average number of rooms per family worked to 1.64.

The facilities like water-taps, bath-rooms and latrines, which the families enjoyed before the disaster may also be noted. Data from the Resurvey of Poona may be cited for this purpose. The percentage distribution of families from Poona City according to the number of families sharing different facilities, viz., bath-rooms, latrines and water-taps, is given in Table 5.5. About half of the families from Poona City shared water-taps and latrines and one third shared bath-rooms with five to 10 or even larger number of families.

Table 5-3 : TOTAL NUMBER OF ROOMS AND NUMBER OF DAMAGED ROOMS IN DAMAGED HOUSES FROM DIFFERENT LOCALITIES

Ward	Condition of the house							
	Totally collapsed		Partially collapsed				Total	
			More than half the rooms		Less than half the rooms			
	Total No. of rooms in the structure	No. of damaged rooms	Total No. of rooms in the structure	No. of damaged rooms	Total No. of rooms in the structure	No. of damaged rooms	Total No. of rooms in the structure	No. of * damaged rooms
Mangalwar	563	563	862	819	811	581	2236	1963
Kasba	809	809	1251	1150	1996	1393	4056	3352
Somwar and other eastern wards	398	398	1046	890	909	467	2353	1755
Shaniwar	1292	1292	2099	1959	3103	1728	6494	4979
Narayan-Sadashiv	1140	1140	1391	1290	2296	1261	4827	3691
Shivajinagar-Erandawana	1160	1160	775	756	1286	968	3221	2884
Total	5,362	5,362	7,424	6,864	10,401	6,398	23,187	18,624

* In addition 2830 rooms called for minor repairs.

Table 5.4 : DISTRIBUTION OF FAMILIES FROM DAMAGED HOUSES, ACCORDING TO NUMBER OF ROOMS PREVIOUSLY OCCUPIED AND LOCATION

Ward	Number of rooms previously occupied			
	One	Two	Three	Total
Mangalwar	1312	279	94	1685
Kasba	1365	642	366	2373
Somwar and other eastern wards	1045	353	169	1567
Shaniwar	1611	938	702	3251
Narayan-Sadashiv	1884	707	408	2999
Shivajinagar-Erandawana	1708	411	173	2292
Total	8925	3330	1912	14167

It will be worth while to note the rent paid by the dishoused families prior to disaster as well as their incomes. The information will give some idea about the rent-paying capacity of the affected families. The required information was available from the application forms submitted by the affected families for housing accommodation.³ Table 5-6 sets out the distribution of families in different wards, according to average rent paid per month.

The monthly rent was less than 10 rupees in the case of nearly 50 per cent of the families, and in another 25 per cent of the cases the rent was between 10 and 14 rupees. If the average rent per month is considered in relation to monthly income (Table 5-7), it is noted that in the case of families whose monthly income was less than 100 rupees, rentals formed 13 per cent of the total income. The corresponding proportion was nine in the case of families with income from 100 to 199 rupees. For families with incomes exceeding 300 rupees, rent formed only five per cent of the total income.

Information about the amount of rent which the dishoused families were willing to pay was also available in the application forms for housing accommodation. This information was compiled and is presented in Table 5-8. The affected families expressed their willingness to pay on an average nearly 1.7 times the previous rent. Families paying rent below 10 rupees were willing to pay an amount twice the previous rent, while those who paid between 10 and 20 rupees were ready to increase the amount only by 25 per cent. Those who paid previously an amount above 20 rupees were not willing to pay higher rents. Families in the lowest income-group were ready to pay as much as 20 per cent of their monthly income as rent, whereas those in higher income-groups were willing to spend only 10 to 12 per cent of the income for payment of rent.

³ The table refers to information given by tenants only. About 14 per cent of the total families were owners of houses.

Table 5.5 : PERCENTAGE DISTRIBUTION OF FAMILIES FROM POONA CITY AREA ACCORDING TO THE AVAILABILITY OF WATER-TAPS, LATRINES AND BATH-ROOMS

	Independent	Shared between						Open space	Public	Common in building	Total
		2 families	3 families	4 families	5—10 families	11—20 families	21 and more families				
		<i>Percentage of families</i>									
Water-taps	34.8	6.1	6.3	6.6	22.9	6.3	3.7	—	9.2	4.1	100.0
Latrines	11.5	6.5	9.3	11.3	36.8	7.0	1.9	1.6	9.6	4.5	100.0
Bath-rooms	58.2	2.6	2.8	3.2	11.1	3.5	1.1	10.9	1.5	5.1	100.0

Source : *Poona A Re-survey*, N. V. Sovani *et al*, Gokhale Institute of Politics and Economics, Poona, 1956, p. 372.

Table 5.6 : PERCENTAGE DISTRIBUTION OF AFFECTED FAMILIES, ACCORDING TO LOCATION AND RENT PAID

D. P.-12

Ward	Rent paid per month (Rs.)							Total
	Less than 5	5—9	10—14	15—19	20—29	30—39	40 and above	
	<i>Per cent of families</i>							
Mangalwar	16.62	36.15	26.65	8.18	8.18	1.85	2.37	100.00
Kasaba	12.09	33.69	26.28	14.95	9.06	3.48	0.45	100.00
Somwar and other eastern wards	12.42	38.32	26.53	11.37	8.63	1.26	1.47	100.00
Shaniwar	13.38	34.63	22.27	14.40	10.52	3.27	1.53	100.00
Narayan-Sadashiv	11.30	33.67	25.58	13.84	10.85	3.21	1.55	100.00
Shivajinagar-Erandawana	11.19	42.42	27.08	7.94	6.14	3.07	2.16	100.00
Total	12.58	35.93	25.30	12.50	9.29	2.88	1.52	100.00

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Table 5.7 : AVERAGE RENT PAID PREVIOUSLY BY THE AFFECTED FAMILIES, ACCORDING TO INCOME AND LOCATION

Monthly family income (Rs.)	Ward						
	Mangalwar	Kasaba	Somwar and other eastern wards	Shaniwar	Narayan-Sadashiv	Shivajinagar-Erandawana	All wards
	<i>Average rent paid (Rs.)</i>						
0—99	6.9	9.0	8.3	8.8	8.7	8.0	8.3
100—199	10.6	11.3	11.1	11.6	12.5	10.6	11.4
200—299	15.7	16.0	17.7	15.6	17.2	16.0	16.2
300—399	15.1	19.9	13.6	16.1	19.3	18.7	17.6
400 and above	—	27.2	14.8	29.2	23.1	35.8	27.4
All income-groups	9.2	10.8	10.6	11.3	11.6	10.1	11.1

Table 5-8 : AVERAGE RENT WHICH THE AFFECTED FAMILIES WERE WILLING TO PAY ACCORDING TO INCOME AND LOCATION

Monthly family income (Rs.)	Ward						
	Mangalwar	Kasaba	Somwar and other eastern wards	Shaniwar	Narayan-Sadashiv	Shivajinagar-Erandawana	All wards
	<i>Average rent willing to pay (Rs.)</i>						
0—99	12.6	14.2	11.7	15.1	14.1	11.2	13.3
100—199	16.7	17.7	17.5	19.1	18.4	16.9	17.9
200—299	24.1	23.7	25.9	28.6	29.1	23.4	26.5
300—399	28.1	35.5	19.0	30.1	42.2	34.7	35.0
400 and above	—						
All income-groups	16.4	17.7	16.4	20.4	19.5	15.9	18.2

Estimate of the number of permanently displaced families

The number of families who were displaced temporarily or permanently from the damaged houses was considered above. It was, however, possible for some of them, to reoccupy their previous tenements after effecting certain minor repairs or cleaning the premises. Out of 23,187 rooms in the damaged houses, 4,563 rooms could be re-occupied soon after the disaster and 2,850 families were able to return to their previous tenements. This means that 11,317 families were in need of housing accommodation. In addition a number of families living in hutments and slums in Shivajinagar, Mangalwar and Kasba wards, were rendered homeless. The estimated number of these families was 2,620. Thus the total estimated number of dishoused families came to 13,937. These families had to be provided with accommodation either in new housing-schemes or at their original place of residence after completing the reconstruction, or the major repair works.

Repairs and reconstruction of damaged houses

It was necessary to expedite the work of repairs and reconstruction of damaged houses so as to relieve the acute shortage of housing accommodation and to speed up the process of rehabilitation of dishoused families. Majority of the house-owners were not in a position to repair their damaged houses as they had lost bulk of their savings and the cost of construction was quite prohibitive. Moreover, even if they had the means to effect repairs, they were not willing to do so since they would have been required to accommodate the old tenants at the original low rents. It was therefore essential to take measures which would provide necessary assistance and encouragement to undertake repairs.

Tenants were permitted to repair their tenements if they desired, and for this purpose financial assistance was made available through the C. M. Fund which supplied 250 rupees as a grant to each applicant. Grants between 250 and 500 rupees were given by the government, and if additional assistance was necessary, the government offered aid in the form of loans up to 10,000 rupees per applicant. The loan was available at the interest rate of four per cent per annum and was repayable in 20 years. A subsidy up to 1,000 rupees was also granted to each of these applicants. All these schemes were applicable both to the tenants and to the house-owners. The total amount sanctioned by the C. M. Fund was 1,28,011 rupees while the government sanctioned 3,94,177 rupees as grants and 31,23,685 rupees as loans to 677 applicants up to the end of July 1962.

The problem of repairs and reconstruction was wrought with further difficulties. The severe shortage of building material, especially cement and bricks, was adversely affecting the speed of reconstruction. Special measures were needed to conserve stocks of these materials and to ensure their distribution

according to a system of priorities. Existing stocks of bricks were therefore frozen by the government, and their distribution was put under control. Dis-housed tenants and owners who desired to repair or reconstruct their houses were given the highest priority. While the system helped check the diversion of resources to other constructions, the re-construction could not gather the expected momentum on account of over-all shortage of these materials. Besides, there were delays in processing the applications, in obtaining the building permission, and in issuing the quotas of controlled material.

Apart from lack of finances and shortage of building-material many families were faced with a totally different problem. They were not permitted to reconstruct or repair their dwellings at the original site because of the decision taken by the government to prohibit any building-construction within the specified distance from the river bank. Demarcation of such a 'flood line' was proposed with a view to protecting the low-lying areas from inundation, during the high floods.

The residents of the area were hostile to the proposal of flood line because of their attachment to their original place of residence as well as its convenient location. However, the consensus of engineers and other officials favoured the fixing of the 'flood line'. At the request of the government two senior engineers made the necessary examination and surveying, and a map showing the proposed 'line' was published by the Corporation on 11th August, 1961. Recommendations of the engineers were embodied in a bill presented to the State Assembly in August 1961. The assembly gave near-unanimous decision to fix the flood line, and created the Poona Mutha River Authority.

The Authority made only a few modifications in the recommendations made by the engineers. It was decided that the width of the river basin be made 500 feet uniformly and on both the sides of the basin 150-foot strip be demarcated where no structures would be permitted. Structures of certain specifications were to be allowed within 75 feet wide area, adjoining the 150-foot, strip. The lines demarcating the area where building-construction was to be prohibited and the area where specified types of structures were to be allowed, will hereinafter be referred to as 'flood line' and 'control line' respectively. The Authority stated that the existing structures within the prohibited area could be occupied up to 31st July, 1965. It also permitted repairs to the structures which called for minor repairs. Major repairs and reconstructions were, however, prohibited, which meant that the former residents of these structures had to be provided with alternative accommodation elsewhere.

One may now examine the condition of the structures coming in the area beyond the flood line and the control line (Table 5-9) to get an idea about the number of owners who were likely to be displaced immediately.

The total number of houses between the river bank and the flood line was 366, of which about 52 per cent collapsed and 25 per cent were considerably damaged. Between the flood line and the control line there were 174 buildings out of which nearly 30 per cent were destroyed and 30 per cent were damaged.

Table 5.9 : NUMBER OF HOUSES WITHIN THE FLOOD LINE AND THE CONTROL LINE, ACCORDING TO CONDITION OF HOUSE AND LOCATION

Ward	Condition of the house				Total	Open plot
	Totally collapsed	Partially collapsed	Major repairs needed	Minor repairs needed		
<i>Number of houses between river bank and flood line</i>						
Mangalwar	2	7	3	9	21	6
Kasba	20	16	14	28	78	22
Shaniwar	42	9	23	6	80	18
Narayan	27	8	5	27	67	17
Shivajinagar- Erandawana	98	3	3	16	120	28
Total	189	43	48	86	366	91
<i>Number of houses between flood line and control line</i>						
Mangalwar	4	11	8	5	28	12
Kasba	4	5	9	21	39	2
Somwar and Raviwar	—	—	1	3	4	1
Shaniwar	15	1	9	4	29	1
Narayan- Sadashiv	11	4	13	17	45	4
Shivajinagar	23	—	—	6	29	5
Total	57	21	40	56	174	25

As per recommendations of the Authority, each of the house-owners whose houses came within the flood line was to be given land equal to three times the previous built-up area with a minimum of 1,800 square feet. Those who owned vacant plots were to be given plots of an equivalent area elsewhere. The provision was similar for house-owners who owned plots within the flood line which were unfit for building purposes. The owners were to get developed land in exchange. In case the owners did not desire a plot of land in exchange

Table 5-10 : NUMBER OF REPAIRED AND RECONSTRUCTED ROOMS, AND THE NUMBER OF FAMILIES ACCOMMODATED IN THE DAMAGED HOUSES, ACCORDING TO LOCATION

Ward	No. of rooms occupied after cleaning or minor repairs	No. of rooms repaired or rebuilt		Total No. of rooms ready for occupation	No. of rooms actually occupied	Number of families accommodated		
		Temporarily	Permanently			Previous	New	Total
Mangalwar	273	136	591	1000	1060	684	77	761
Kasba	704	346	1213	2263	2299	1201	71	1272
Somwar & other eastern wards	598	166	638	1402	1448	890	46	936
Shaniwar	1515	470	1631	3616	3637	1710	100	1810
Narayan — Sadashiv	1136	168	1189	2493	2497	1253	81	1334
Shivajinagar — Erandawana	337	174	874	1385	1404	904	48	952
Total	4563	1460	6136	12159	12345	6642	423	7065

they could claim compensation in cash, equivalent to the value of land in question at 1948 prices. The total land required for giving in exchange came to about 50 acres.

Housing for the dishoused families

After effecting repairs to and reconstruction of the damaged structures, accommodation became available to a considerable number of dishoused families by March 1962. The number of rooms repaired and reoccupied in different wards is given in Table 5-10

By March 1962, 12,345 rooms from the damaged houses were reoccupied. As already mentioned 4,563 rooms were occupied within a fortnight after the disaster, 6,136 rooms were occupied after completing major repairs, 1,460 after erecting temporary shelter at the site, and 186 rooms were occupied without effecting any repairs.

In all 7,065 families occupied these rooms, 6,642 of these being old occupants and 423 new tenants. Among the new tenants 368 were affected families and only 55 were non-affected families. Thus 7,010 (6,642 + 368) affected families were accommodated in the repaired and reconstructed houses. However, 1,000 of these were staying only in temporary structures and could not be treated as rehabilitated permanently. This means that of 16,790 families from the damaged houses or huts, nearly 11,000 were still left without permanent accommodation and 10,000 without any accommodation. A number of housing-schemes were considered and certain schemes were finalized for providing alternative accommodation to these homeless families. The type of accommodation and amenities provided under various schemes may be considered briefly.

Nissen huts : At the instance of the State Government the Indian Army undertook to erect 100 Nissen huts in Sadashiv Peth. The dimensions of each hut are 14 ft. × 36.25 ft. These are built in curved iron sheets with Shahabad stone flooring and are divided into two parts by tin-sheet partition, each part accommodating one family. A detached unit of two bath-rooms and two latrines is provided to be shared between four families, while two water taps are shared by ten families. Underground drainage and electric light within the dwelling as well as street lighting are available.

Dormitories : The State Government planned to build 125 dormitories to provide accommodation to 2,000 families. Eighty-seven of these are located near Parvati Hill, 20 at Erandawana, and 18 near Fergusson Hill. The size of each dormitory is 94.25 ft. × 26.75 ft. and it accommodates 16 families. Dormitories are constructed with brick walls and asbestos-sheet roofing. The partition walls are mostly of tin sheets. Each family is allotted a single room with dimensions: 11 1/2 feet × 12 feet and an attached *mori*. Four latrines and two water-taps are provided for sixteen families. Provision of underground drainage and electricity in the dwelling is made.

Plinth structures : The plinth structures are located at five different places: 448 near Ambil Odha, 148 at the foot of Vetal hill in Shivajinagar, 45 in Erandawana, 41 in Bhavani ward, and 28 near Parvati Hill.

On the plinths admeasuring 26 ft. × 23 ft. superstructures are built with brick walls and asbestos-sheet roofing. The plinth structure accommodates two families, each family having a room admeasuring 11 ft. × 12.5 ft. and a covered verandah. A detached unit of one latrine and two *moris* is provided at the rear of each plinth. While underground drainage and street lighting are provided, electricity is not available in these dwellings.

Temporary housing

Two schemes for providing temporary shelter were undertaken to accommodate the families from the relief centres, till they could be provided with permanent houses. These included round huts with total accommodation for 388 families, and bamboo-matting huts which provided shelter to a total of 2,292 families. The distribution of these huts at different locations is shown in Table 5.11. Four hundred and thirty matting-huts were erected on plinths on which permanent superstructures were built later; 343 were built without plinth.

Table 5.11 : DISTRIBUTION OF TEMPORARY HUTS ACCORDING TO LOCATION

Location	Round huts	Bamboo-matting huts	
		Without plinth	On plinth
Parvati	62	—	20
Erandawana	20	83	22
Health Camp	15	—	—
Chatushringi	—	156	—
Pashan	—	104	—
Mendhi Farm	—	—	36
Ambil Odha	—	—	132
Bhavani	—	—	20
Total	97	343	430

The dimensions of bamboo-matting huts were 24 ft. × 24 ft. while the round hut built in curved asbestos sheets admeasured 24 ft. × 18 ft. Each of these huts was divided into four parts and accommodated four families. The hutment colonies were provided only with trench-type latrines, and common water-taps.

Schemes by the Maharashtra Housing Board : The Maharashtra Housing Board agreed to provide the dishoused families with housing accommodation under various schemes. They proposed to provide 400 flats in Sadashiv Peth under the Low-Income-Group Housing Scheme. Under this scheme, accommodation is provided to families with income between 250 and 500 rupees per month. Two types of flats, viz. 'A' type with carpet area of 349 sq. ft., and 'B' type with carpet area of 287 sq. ft., are provided. In both the types each flat contains two rooms, a verandah and an attached bath-room and a latrine. The flats are available on hire-purchase basis, the period of purchase being 30 years.

Under the slum clearance scheme the Board offered to provide 2,500 tenements. Each tenement contains one room admeasuring 116 sq. ft., a kitchen admeasuring 86 sq. ft., and a sanitary block. In addition 200 tenements under subsidized industrial housing scheme were also proposed to be built. These were to be provided with a small court-yard in addition to two rooms and a sanitary block.

Schemes by Poona Municipal Corporation : The Corporation undertook to build dormitories and plinths for the dishoused families. One-room tenements built with tin-sheet walls and roof, providing accommodation for 120 and 80 families were planned at Ambil Odha Colony and near Chatushringi respectively. In addition it was planned to provide four plinths, each of the size of 86 ft. \times 26 ft. and the construction of super-structures was to be left to the affected families. Each plinth was to accommodate 18 families.

Housing by the Central Government : The Central Government prepared a scheme to provide accommodation to their employees affected in the disaster. In all 216 affected families were to be given tenements at Mukundnagar near Swar Gate. The tenements were to be of three types, viz., one-room, two-rooms, and three-rooms. In the first two categories, bath-room and latrine were to be shared between two families and in the third independent sanitary block was to be provided.

Other schemes : The Maharashtra Road State Transport Corporation prepared a scheme for providing tenements to 41 families. The tenements were similar to those built under the subsidized industrial housing scheme.

The progress of construction

The construction of Nissen huts began on 25th July 1961, and was completed by 17th August 1961. However, arrangements for roads, drainage, water, etc., were incomplete and hence the families could not be shifted immediately. By the middle of September, Nissen huts were ready for occupation. In all 196 families were accommodated in these huts; two huts were used for public purposes. By November 1961 all the huts were occupied. They are now treated as permanent structures.

The construction of dormitories started on 28th July 1961. Initially part of the outside walls was built in brick and a part in bamboo-matting; the latter, however, was soon replaced by brick walls. By the end of October 1961, a substantial number of dormitories became ready for allotment, and by the end of November 1961, 1680 families received accommodation in dormitories. By the end of July 1962, 1961 out of 1988 tenements were occupied.

The scheme of plinths underwent several changes. Initially the government proposed to build plinths in stone and mud and leave the families to erect the superstructure; material worth about 150 rupees was to be supplied by the government. Subsequently the C. M. Fund Committee agreed to grant 250 rupees per family. The plinths built in mud-mortar could not sustain the rains and were washed off. They were again built in stone and lime-mortar. It was decided to build the superstructures as well, because additional funds in the form of grants from two private relief funds became available. Initially it was planned to construct 460 plinths, but this number was first increased to 500 and later to 710. Due to frequent changes in the scheme, the work of construction was delayed, and the allotment of tenements could begin only by March 1962. By the end of June 1962, all the plinth-tenements became ready for occupation. By July 1962, 1404 out of 1420 tenements were occupied.

The round huts were ready by the middle of November 1961, and 388 families were shifted from relief centres to round huts. The matting-huts were getting ready for occupation from the middle of November to the middle of December, and families from the relief centres were shifted there gradually. By June 1962 all the 2,292 families from the matting-huts were allotted permanent accommodation, and the huts were dismantled.

The accommodation offered by the Maharashtra Housing Board was subsequently scaled down, and under the slum clearance scheme, instead of providing 2,500 tenements only 1300 tenements were offered. There was considerable delay in the construction work of these schemes due to serious shortage of cement and other building-material. By the end of March 1962, only 300 tenements under the slum clearance scheme and 68 under industrial housing scheme were ready. As rents for the low-income-group flats were high, many affected families were not willing to occupy them. Three hundred and ten flats were ready, but only 140 were occupied by July 1962. Under the Subsidized Industrial Housing Scheme, 31 tenements were allotted by July 1962. The movement of the displaced families from temporary shelters to permanent housing is shown in Table 5.12.

The programme of construction envisaged by the Central Government was completed by June 1962, and all the 216 tenements were occupied.

By March 1962 four plinths were constructed by the Poona Municipal Corporation. Construction of plinth was facilitated by an interest-free loan of two lakh rupees from the C. M. Fund. In addition the Fund granted each

family 250 rupees for building the super-structure. Two existing plinths were also used to accommodate the affected families. By July 1962, 120 families were given accommodation in sheds at Ambil Odha, and 90 on the plinths at Chatushringi.

The government and semi-government schemes described above provided accommodation to in all 5,500 families. Still nearly 4,500 families were without any accommodation.

Allocation of tenements : It was decided by the government to make allotment of various types of tenements, according to the incomes of the displaced families. The income categories and the type of tenement to be allotted to families in these categories are shown in Table 5.13

Table 5.13 : TYPE OF TENEMENT ACCORDING TO INCOME CATEGORY

<i>Category of Income</i>	<i>Type of tenement</i>
1. Families with income not exceeding Rs. 100 p. m.	Round huts and plinth-tenements
2. Families with income between Rs. 101 and 170 p. m.	Dormitory tenements
3. Families with income between Rs. 171 and 250 p. m.	Nissen huts
4. Families with income of Rs. 251 and more.	MHB 'A' & 'B' type flats

Government, announced the rent charges for each type of tenement on 13th August 1961, (See Table 5.14).

Table 5.14 : RENTS OF DIFFERENT TYPES OF TENEMENTS

<i>Type of tenement</i>	<i>Rent</i> p. m. (Rs.)	<i>Service charges</i> p. m. (Rs.)
Nissen huts	26.00	4.00
Dormitory (before conversion into one-room tenement)	14.00	2.25
After conversion	18.00	2.25
MHB 'A' type flat	65.00	5.00
MHB 'B' type flat	55.00	5.00

These rents were considered excessive, and demands for their reduction were vigorously pressed on behalf of the affected people. The rents of the new tenements were very high as compared to the rent most of the affected families were previously paying, viz., Rs. 5 to Rs. 10 p. m. It was also pointed out that on account of the distant location of the colonies, additional expenditure on transport, increased the burden on the affected families. The demand for reduction of rents soon became a public issue with mass meetings in the city and demonstrations before the government offices and the legislative assembly. Subsequently the Government appointed an official committee to examine the whole question of rehabilitation. From 26th to 31st August 1961, the committee held discussions in Poona with government officials and persons connected with rehabilitation.

The committee recommended concession in rent of all the tenements. In the case of Nissen huts and dormitories, for the first three years after the allotment, concession to the extent of 33 1/3 per cent of the total rent and for the next two years to the extent of 16 2/3 per cent of the rent, was to be given. After five years the affected families were to pay the full economic rent. For 'A' and 'B' type of flats built by the Maharashtra Housing Board the concessions were 25 per cent and 16 2/3 per cent for the first three years and the subsequent two years respectively. The rent of plinth-tenements was fixed at 3.75 rupees per month exclusive of service charges.

Government accepted these recommendations. The new schedule of rent charges is given in Table 5-15.

Table 5-15 : REVISED RENTS OF DIFFERENT TYPES OF TENEMENTS

<i>Type of tenement</i>	<i>Rent</i> p. m. (Rs.)	<i>Service charges</i> p. m. (Rs.)
Nissen huts	17.40	3.60
Dormitory tenements	11.75	2.25
MHB 'A' type flat	52.50	5.00
MHB 'B' type flat	45.00	5.00
Plinth-tenements	3.75	1.25
Round huts	2.75	—
Matting-huts	2.50	—
Subsidized Industrial Housing tenements	16.00	4.25
Slum clearance tenements	14.00	4.50

Later the Central Government agreed to bear 33 1/3 per cent of the cost of the government housing schemes. In view of this, it was no longer necessary to withdraw the concessions gradually, and the rents were fixed permanently at the levels given above.

Co-operative Housing : The government housing schemes were unable to cope with the problem of providing accommodation to all the dishoused families, and over 4,000 families were still to be provided with housing. Government therefore encouraged these families to form co-operative housing societies and undertook to provide them with government land or private land after due acquisition, and long-term loans for construction of houses. The Government assured to allot the societies the required land on a 99-year lease. The minimum plot area prescribed for each family, was initially, 3,600 sq. ft. On account of shortage of land in the vicinity of Poona, this limit was later brought down to 2,000 sq. ft. The affected families had hardly any resources to contribute towards the cost of development of land and construction of the houses. The government therefore agreed to grant long-term loans for construction and development through Maharashtra Co-operative Housing Finance Society. Twenty-five lakh rupees were set aside for this purpose. Each family was eligible to receive an amount not exceeding rupees 8,000 at the rate of 5 1/2 per cent per annum, repayable in 20 years. Monthly instalment of repayment was prescribed according to the cost of the house. (See Table 5.16).

Table 5.16 : COST OF DWELLINGS OF DIFFERENT SIZES

<i>Size of dwelling</i>	<i>Approximate cost (Rs.)</i>	<i>Monthly instalment (Rs.)</i>
1 room and verandah	4000	26
2 rooms and verandah	6000	39
3 rooms and verandah	8000	52

The estimated costs given above cover only the cost of construction and not the cost of land, and the monthly charge excludes municipal taxes.

The government announced a subsidy of 25 per cent of the cost of construction, but not exceeding 1,000 rupees, per family, for families whose dwellings fell within the flood line. The C. M. Fund Committee also announced a grant of 250 rupees per family in case the cost of the dwelling did not exceed Rs. 3,000. In addition, the government agreed to bear the cost of development of land of the co-operative societies formed by the backward-class people. The members of these societies were also declared eligible for an interest-free loan up to 4,600 rupees per member, for the construction of the house. Repayment of the loan was to be subsidized to the maximum of 1,000 rupees per family. By the end of September 1961, 133 co-operative housing societies were formed by the affected families. Of these 117 societies were registered by March 1962.

In September 1961, the government began acquiring private land for leasing out to the co-operative housing societies. Some of the government land was also earmarked for the co-operative societies. The total land (276.50 acres) to be allotted to co-operative societies was distributed in different parts of the city as follows : 196.25 acres around Parvati, 28 acres along Satara Road, 8.50 acres in Bhavani ward, 36.45 acres near Chatushringi, and 7.30 acres in Erandawana.

Initially it was announced that the government would give developed land to the societies. However, in November 1961, government sent a circular to the societies requesting them to pay up to 7th February 1962, development expenses of 1,200 rupees per member. As it was impossible for the members of the societies to raise the amount immediately, the societies formed a federation and its delegation called upon the government. In the negotiations that followed the government agreed to extend the limit of receiving payments and requested the societies to pay immediately whatever sums they could pay, so that government could forthwith start the development work.

The layout was ready by February 1962, and the work of allotment of land began in March 1962. By the end of March, administrative approval for the work of development was received. Development expenses were expected to be 13,500 rupees per acre. The Government Department of Buildings and Construction forthwith began the development work.

By June 1962 the number of registered societies had gone up to 122, with a total membership around 3,300. These 122 societies included 28 societies of the backward classes with a membership of about 700. About 50 societies contributed development expenses amounting to 1,85,000 rupees. Loans, not exceeding 600 rupees per member, were sanctioned by the Maharashtra Co-operative Housing Finance Society for the work of development. These loans were sanctioned to the members of 60 societies and amounted to 3,73,000 rupees. The government sanctioned 16,74,000 rupees as interest-free loans to the members of 27 backward-class societies.

The acquisition price fixed by the government for taking over private lands was 6,000 rupees per acre; it was based on prices prevailing in 1948. The landlords were not satisfied with the price offered by the government. The issue was contested in the court of law and the Bombay High Court issued a "stay order" on the government. The government therefore ordered that development work be stopped on all lands acquired from private parties. Ultimately the decision of the High Court went against the state government. The government then appealed to the Supreme Court which confirmed the opinion of the High Court. The decision of the High Court affected the housing programme of 71 co-operative societies. In the absence of land their housing programmes were indefinitely postponed. Housing programme of the societies which received government-owned land could alone be executed.

By the beginning of January 1963, 583 dwellings belonging to 23 backward-class societies were under construction. Of these 378 houses belonging to 16 societies were completed. Out of the completed structures 92 were actually occupied. Two hundred and ninety-five houses belonging to 20 other societies were under construction, and 174 houses belonging to 14 societies were ready for occupation. However, only 94 houses were occupied.

The position of the co-operative housing programme at the end of July 1965 was as follows : 583 houses of the backward-class societies were under construction. Of these 456 houses were ready, but only 110 were occupied. The rest of the houses were not occupied for non-availability of certain facilities notably water supply and electricity. Three hundred and thirteen houses of other societies were under construction, of which 310 houses were completed and 25 houses were occupied.

It will be seen that only 360 families of the total 3,300 families moved four years after the disaster to the houses built under the co-operative housing programme. The rate of construction was very slow. Between January 1963 and June 1965, only 78 houses of the backward-class societies, and 136 houses of other societies, were constructed. The slow rate of construction has been attributed to delay in designing, in obtaining building-permission, and in securing the supply of building materials.

It is noted above that housing programmes of 71 societies were suspended because of the dispute over land acquisition. Recently it is reported that government is acquiring 120 acres of private land along Satara Road and at Aranyeshwar for leasing out to co-operative societies. The land is being purchased at current prices which are reported to be around 36,000 rupees per acre. As the land is not sufficient for the building programme of all these societies, the societies are requested to build multi-storied houses instead of an independent cottage in a plot admeasuring 2,000 square feet.

The government had thus to pay a very high price because of their failure to reach agreement as regards price-fixation, and the members of the co-operative societies had to suffer infinite inconvenience and hardships due to the indefinite suspension of the housing programme. It may be noted that due to the distant location of the co-operative housing colonies, some of the members of the societies are reported to be unwilling to go there. They have been permitted to let a part of their houses and many have done so. Some of the members have rented out the whole house and are staying at their original place of residence after effecting repairs.

Housing through private agency : The programme considered so far was mainly initiated by the government or semi-official agencies. One small housing programme was sponsored by a private institution—a relief society from Bombay. The society prepared the scheme and made provision for the capital, and the scheme was implemented with the co-operation of certain educational institutions which granted the use of their premises.

In all 56 tenements were built. Twenty-four tenements are located in the premises of each of the two colleges, and the remaining eight are located in the premises of a physical culture institution. Construction of the tenements was completed by July 1962 at a cost of 2,35,872 rupees.

Under this scheme two-room tenements are provided in row houses. The houses are built in bricks with asbestos-sheet roofings. Each tenement is provided with water tap and electric light, while latrines and bath-rooms are shared.

Applications were invited from the affected families by a committee constituted of representatives of the society and the heads of educational institutions. Some of the tenements were reserved for the affected employees of these institutions. The scheme could not be given wide publicity, as a result of which those favourably placed to obtain information about the scheme could apply and secure accommodation.

The tenements are allotted to the affected families for a period of five years to enable them to tide over the initial difficult period. After the lapse of five years, the rooms will be donated to the respective institutions as hostel accommodation.

To sum up, nearly 14,000 families were displaced in the Panshet disaster. By March 1962, 3,100 displaced families were able to reoccupy their houses after repairing or reconstructing them, and nearly 1,000 families went to stay at their original place of residence by erecting temporary shelters. Some more families must have re-occupied their original place of residence during the period 1962 and 1965. It was not, however, possible to know the number of such families. Under the various schemes sponsored by the government and co-operative societies, about 6,000 families were accommodated up to the end of March 1965. The members of co-operative housing societies who could not get the necessary land are presumably staying somewhere, making some make-shift arrangement and could not be taken as rehabilitated. The estimated number of such families is about 2,000. In addition there might be some families who are still living in unrepaired houses, temporary sheds or hutment colonies. However, the number of such families could not be ascertained. It is not therefore possible to arrive at an estimate of the total number of families in need of permanent accommodation to date, but the minimum number could be put at 2,000.

CHAPTER VI

A Review of Relief and Rehabilitation Measures

A LARGE NUMBER of short-term and long term problems arose out of the Panshet disaster, and a variety of measures were devised to meet the calamitous situation. An attempt is made in this chapter to review the measures of relief and rehabilitation instituted after the disaster.

The immediate major task was to organize and administer relief on a massive scale. It will be interesting to consider how the over-all problem of providing relief was tackled, what type of difficulties were faced by the administrators, and how far the administrative machinery created to meet the situation, proved effective. Equally important was the question, why the dams collapsed. The ordinary citizen was anxious to know who was responsible for the disaster and hence there was a widespread demand for a judicial enquiry.

The principal long term problems were (a) restoration of water supply, (b) rehabilitation of the affected and the dishoused families, and (c) Redevelopment of devastated parts of the city.

Broadly speaking the solution of water supply problem awaited the reconstruction and repair of Panshet and Khadakwasla dams. The two crucial factors on which the success of re-housing programme hinged were availability of land and adequate finance so as to provide housing within the economic means of the affected families. Solution to the problem of redevelopment of the city was closely linked with the preparation of an overall development plan and creation of an authority to execute it.

Relief

The problem of administering relief to the affected was by all measures an enormous one. When thousands lost all the essentials of living, wholesale distribution of basic necessities of life had to be arranged immediately. Distribution of cooked food was taken in hand within a few hours after the blow struck the city, and cooked food coming from within and outside the city was distributed *en masse*. It was difficult to organize properly the work of collection and distribution of food, and some of the cooked food, particularly the food coming from outside, was wasted. No arrangement could be made to see whether all the needy families received food. Such arbitrary distribution continued for about two days after the disaster.

Another immediate problem was of provision of shelter to the dishoused families. The affected families who had taken shelter in schools and other institutions during the deluge returned again to these institutions when they found

their erstwhile dwellings reduced to brick and rubble. The problem of providing temporary shelter to the dishoused was thus solved automatically. The erection of tents or other temporary shelters, which would have been rather difficult in the rainy season and which would have involved considerable expenses, was thus obviated. Within a few days after the disaster arrangements for providing cooked food were made at the relief centres. The peculiar nature of these refugee camps, however, made it necessary to distribute cooked food for a very long time, whereas in refugee camps it would have been possible to ask the families to do their own cooking. This kind of dependency by right coupled with uncertainty about rehabilitation gave rise to frustration and sharpened the edge of antagonism between the affected and others, particularly the government officials and aid administrators.

The families who did not take resort to relief centres were provided with food-grains and cash grants within a week after the disaster in order to enable them to tide over the initial difficult period. This was followed by distribution of cloth and cash grant for buying utensils. The distribution, however, was not preceded by identification of affected families to ensure that the assistance was given only to the affected and was given in proper quantities. The listing of affected families was taken up nearly one and a half months after the disaster and was entrusted to inexperienced hands. The officials themselves expressed doubts about the authenticity of investigation and some cases of fraud were detected. The total quantity of aid was thus spread over a larger number of families, and some of the affected families remained dissatisfied.

It was possible to organize the relief work quickly and at comparatively low costs because the premises of educational institutions were available as relief centres and the authorities of the institutions took over the responsibility of the management of the centres. The distribution of food, clothing and other necessities of life on such a large scale was possible due to generous donations from large number of individuals and institutions. The voluntary contribution in kind and in cash thus helped to organize the relief work expeditiously.

After the provision of basic amenities of life, viz., food, clothing and temporary shelter, assistance towards occupational rehabilitation was necessary to help the families come out of the rut of dependency. Ideally speaking each affected household need be satisfied of its own peculiar requirement. It was hard to achieve this aim as it involved dealing at personal level. Neither the government nor any private organization was in a position to arrange for aid according to individual circumstances. The C. M. Fund committee came nearer this ideal as it sanctioned aid after inspection and assessment of individual losses. Various schemes for occupational rehabilitation were prepared by the C. M. Fund Committee and were executed in collaboration with urban co-operative and commercial banks. The schemes involved grant of long-term loans at reasonable rates of interest and easy security con-

ditions. Government also sanctioned subsidies for occupational rehabilitation to shop-keepers, artisans and industries. In addition, the C. M. Fund Committee sanctioned grants for rehabilitation of agriculturists and others from the affected rural areas. The success of the loan programme would be evident from the fact that the officials of the co-operative and commercial banks reported regular repayment of loans by most of the affected businessmen.

Administrative set-up

The government had to play a significant part in the relief administration. The existing government machinery being inadequate to cope with the emergency, certain improvisations were made. Rather than creating a special task force with comprehensive powers to deal with the situation, the government relied upon creating consultative and co-ordinating bodies. A special officer of the I. A. S. rank was appointed to assist and advise civil authorities. In practice, he remained more concerned with implementation of decisions taken by civil authorities than advice in decision-making. A Co-ordination Committee consisting of different civil officials, with an ex-I. C. S. officer as its chairman, was convened for co-ordinating the work of different civil departments. As a body of high officials it was primarily responsible for initiating the work of cleaning the city, restoring the amenities, and organizing the rehabilitation work. The work was complicated, unusual, and involved action by a number of departments. The Chairman of the Co-ordination Committee was supposed to act as a representative of the Chief Minister and as a liaison between Government officials and representatives of the public. As such, he was often approached by the people, and the Committee was requested through him to consider certain matters. Nevertheless, it is doubtful how far substantive decisions were taken in the committee meetings. The statements made by the Chairman were sometimes challenged and contradicted by member officials. Major decisions, it appears, were taken by the civil authorities themselves, each acting separately in his own sphere. The Chairman could hardly move the committee to co-ordinate the work of different departments.

The official bodies failed to inspire confidence in the people, particularly because most of the officials in charge were the centre of public criticism for their failure to take appropriate action during the calamity. The officials on their part, were exasperated and irked by constant public criticism, and a hesitant approach was evident in dealing with problems.

The C. M. Fund Committee on the other hand had well defined objectives and specified powers. The Chairman of the Committee had the necessary authority to implement the decisions and the members of the committee were non-officials who could offer unencumbered advice. Thus the Committee acted promptly and its decisions enabled many other bodies to initiate their schemes forthwith.

Zonal Committees with prominent citizens and social and political workers as their members were organized for different parts of the affected areas by the citizens themselves. As such they inspired the necessary confidence among the affected people and could act as liaison between the government and the people. They proved useful mainly in effecting distribution of food-grains. A Citizens Committee was convened as a body representing the affected people, but in practice it served merely as a platform for ventilating the grievances of various people.

There were a large number of private bodies who collected and distributed aid among the affected, each body having its own method of distribution. The multiplicity of committees, bodies, and government departments like 'Flood' branch, 'Supply' branch, etc., created for the relief and rehabilitation work, often led to duplication and lack of co-ordination. Under such conditions it became difficult to take an over-all view of the total situation and to prepare a total scheme for relief so as to ensure proper and equitable distribution of aid.

Enquiry Commission's Verdict

A judicial probe into the circumstances of Panshet disaster was demanded by the enraged citizens of Poona as it was felt that adequate measures for saving lives and property of the citizens were not taken by the authorities after the collapse of Panshet Dam. Consequent upon this insistent demand government appointed, on 24th July 1961, Mr. R. S. Bavdekar, I. C. S. (Retd.) to 'inquire into and report on the cause of the failure of the said dams and on the adequacy of the action taken by various authorities to avert the disaster or to mitigate consequences thereof¹. Scarcely had the work of the Commission begun, was it interrupted by the tragic death of Mr. Bavdekar. Earlier it was reported that Mr. Bavdekar had complained to the Government that certain official files and documents submitted to him for investigation were found tampered with.

On 3rd November 1961, Justice Naik was appointed to carry out the enquiry left unfinished on account of the sad demise of Mr. Bavdekar. The work of the Commission commenced on 9th December 1961. Justice Naik was assisted by two expert engineers as assessors, and a counsel who was assisted by four advocates on record. After examining several witnesses, official and non-official, the commission submitted their report to the Government on 5th January 1963. The report was laid before the Legislative Assembly in September 1963.

The Commission in their report criticized the civil and the police authorities for their failure to take precautionary measures like giving warning to the

1. Naik, Justice, Report of the Commission of Inquiry for enquiry into the failure of the Panshet and Khadakwasla Dams, Part I, Government of Maharashtra, 1963, p. 2.

people, assessing the probable spread of water and making adequate arrangements for evacuation and rescue of the people. They have remarked: "The civil authorities took no steps even after the information about the breach of the Panshet dam being imminent, was conveyed to them."² Again, "There was no co-ordination between the different government agencies. The highly placed officials got demoralized, their judgement having been completely paralyzed."³ The Commission thus came to the conclusion "that the civil authorities were unprepared to meet the situation."⁴

The Commission also expressed surprise and regret at the continuance of the officials in their posts during the course of enquiry. According to the Commission the civil authorities were mainly responsible for failure to mitigate the consequences of the disaster, and therefore it was expected that the government would initiate appropriate action. However, the government, before taking any action on the basis of the Report, appointed an official to interpret the report and suggest necessary action. Subsequently no action has been taken and there the matter seems to have been closed. Thus the whole purpose of having an enquiry appears to be defeated and an expenditure of about a million rupees, seems to have been wholly wasted.

The problem of water supply

The collapse of Panshet and Khadakwasla dams created an urgent need of providing at least some minimum water supply to the city. Diversion of seasonal streams and utilization of water from Katraj tank helped tide over the immediate problem to a certain extent. In the meantime, the possibility of repairing and strengthening Khadakwasla dam was under consideration. The Committee of Experts appointed by the government opined that an earth-dam at Panshet was technically feasible. In the case of Khadakwasla dam, the Committee did not favour the closing up of the breach but suggested a U-shaped wall covering the breached portion.

The work on U-shaped wall at Khadakwasla began in February 1962 when the Naik Commission accorded the necessary permission. It was planned to complete this work by June 1962, i. e. before the advent of the monsoons. Meanwhile various proposals were under consideration to provide water supply during the period October 1961 to June 1962. The scheme of diverting water from Mulshi lake was strongly recommended and readily accepted. Work on this scheme began in August 1961 and supply of water from Mulshi lake started from December 1961. The cost of this temporary water supply scheme was about 1.25 crore rupees. Inauguration of Mulshi scheme undoubtedly solved the problem of water supply at least for the short run. However, the urgency of implementing a permanent water-supply scheme was thereby reduced.

² *Ibid.*, Part II, p. 448.

³ *Ibid.*, Part II, p. 401.

⁴ *Ibid.*, Part II, p. 450.

It appeared by mid-March that the work of U-shaped wall could not be completed before June 1962. The scheme was therefore reconsidered and the construction work was indefinitely postponed. It became necessary therefore to take water supply from the diverted streams and the river during the rainy season, and after the rainy season the Mulshi scheme had to be put into operation for the second year in succession. The work on construction of U-shaped wall was not resumed after the end of the rainy season and later on the scheme was altogether abandoned.

Various schemes for the restoration of water supply were still under consideration, and after the inauguration of new (Kannamwar) Ministry, it was announced on 16th January 1963 that a new dam was envisaged at Khadakwasla instead of the U-shaped wall. The new dam which was to be completed in four years was of much smaller capacity viz. 500 m. cft. of water. It was to be built in concrete at an estimated cost of 335 lakh rupees. The new scheme thus involved heavy costs of construction. Besides, expenditure had to be incurred for operating the expensive Mulshi scheme (about 20 lakh rupees per annum) for another four years. Possibility of restoration of the normal water supply in a reasonable time became quite remote.

In view of this the Government was pressed by the public to consider alternate schemes so as to avoid waste of time and money. A concrete dam at Panshet and a pick-up weir at Khadakwasla or alternatively, a scheme of repairing and strengthening Khadakwasla dam so as to store 1,450 m. cft. of water were suggested. Subsequent to this the Chief Minister held discussions with various expert non-official bodies and persons and promised to consider alternate schemes. Nevertheless government insisted on constructing a small new dam, but announced, in September 1963, that the dam at Khadakwasla would be masonry instead of concrete, to be completed in three years.

The people and the representative organizations therefore, continued to urge government to commence work on schemes from which benefits would accrue immediately. Ultimately the new Chief Minister Mr. Naik, announced in March 1964 that before the advent of rainy season in 1964 the breach at Khadakwasla would be closed partially, i. e. up to a height of 45 feet and by the end of the rainy season partial supply would be made available from Khadakwasla reservoir. The suggestion of strengthening the existing dam by means of earth-work was also accepted. Work on closing the lower portion of the gap in Khadakwasla dam began on 4th March 1964 and was completed by the first week of June at an estimated cost of 15 lakh rupees. The work of closing the upper portion of the gap was completed between November 1964 and June 1965. What could have been done immediately after the disaster was accomplished after so much vacillation and unpardonable delay!

The portion of Khadakwasla dam where hundred automatic and rolling gates were located is still to be reconstructed. The gates are redesigned.

The work was taken up in November 1965. It is expected to be complete by June 1967. The dam is also being strengthened by means of grouting and earth-backing. The estimated cost of the total repairs to Khadakwasla dam is 1.5 crore rupees. The original storage at the Khadakwasla dam is likely to be restored, after a period of six years following its collapse.

As regards Panshet Dam, it was decided to rebuild it partly in earth-work and partly in stone masonry (4 m. cft.). The work of repairs to the existing earth-work (53 m. cft.) and construction of new earth-work (67 m. cft.) started in November 1965. The construction of Panshet Dam is expected to be complete by 1970 at a total cost of 3.50 crore rupees. Initially the cost of Panshet Dam project was estimated at 2.5 crore rupees. The ill-fated decision to complete the work before the scheduled time led to an increase in the cost of the project by more than four crore rupees and imposed a loss of about 14 crore rupees on the citizens of Poona.

Rehabilitation

The phase of relief ended and that of rehabilitation began when families were moved out of the relief centres into temporary and permanent shelters. But a hesitant approach was discernible in solving the problem of rehabilitation also. While allocating the new dwellings due consideration was not given to previous place of residence, place of business or work of the affected families. Criterion of income was alone used in allotting housing accommodation. Total disregard to consideration of social factors led to friction and disruption of social life was reported in certain cases. The schemes initiated for resettlement of affected people were not well co-ordinated. Instead of devising a comprehensive plan of rehabilitation on the basis of recognition of the dimensions of the total problem, a patchwork of separate schemes was devised to meet the problems as they emerged. Moreover, on account of certain changes in schemes there was delay in constructing houses, and government was forced to erect temporary shelters at a cost of about half a million rupees.

Of the various housing schemes initiated by the government for the dishoused families the scheme of Nissen huts proved to be most short-sighted. Decision to erect Nissen huts with the help of the Army was taken hastily without considering the cost in terms of capital expenses and the land required. Time was the only factor that counted. Though the scheme was completed in a short time it provided accommodation to only a fraction of dishoused families. On the other hand the scheme of dormitories was completed within a reasonable time and at a moderate cost and provided accommodation to a sizeable number of families. The scheme of providing plinths would have certainly given rise to fresh slums, but thanks to the assistance of C. M. Fund and some private donors, superstructures were built on the plinths and the scheme was transformed into one providing neatly-built tenements.

As the housing schemes were not adequate to provide shelter to all the dis-housed families, formation of co-operative housing societies was encouraged and more than 3,000 families came forward to form the societies. The government, however, failed to provide the necessary land to nearly two thirds of the societies, due to dispute over price-fixation. The prices for purchasing private lands were at first fixed by the government at 1948 level which led the land-owners to approach the court of law. When government's case could not be judicially sustained, offers to purchase land at 1961 level of prices were made. But by that time (1964) the land prices reached fantastic heights and the owners were not willing to accept 1961 prices. Eventually it became necessary to pay the current market prices. In the meantime a large number of dishoused families suffered great hardships for want of accommodation and government had moreover to pay higher prices for the purchase of land.

It was not actually necessary to allot a separate plot to each member of the co-operative society which was provided with government land. It would have been possible to ask the societies to build row houses or flats in a multi-storeyed structure, which could have saved both the land and the expenses of construction and many more families could have found accommodation within the available land.

Even in minor matters lack of clear policy was evident. The accumulated heaps of timber from collapsed houses may be cited as an example. This huge quantity of timber collected by the government could have certainly been to good use while erecting dormitories and other shelters or could have been re-allotted for repairs and reconstructions of houses. Instead, thousands of cubic feet of timber which was certainly the property of the citizens, are lying waste for the last five years.

Another incidental problem emerging out of rehabilitation efforts was the problem of collection of rent and subletting. In spite of subsidies given by the government, many families pleaded their inability to pay the rent charges. Moreover, it is intended that eviction for non-payment of rent was unjust, as the families suffered greatly in the disaster. There were some instances where the affected people repaired their former residence (where rents were lower) and sublet the accommodation received from the government or the agencies. The problem of rent collection and subletting is very intricate and rather tricky and is bound to arise in the government housing schemes, particularly where the tenants do not have a definite source of income.

Redevelopment of the city

The problem of redevelopment was very complex and called for a long-term solution. The central part of the city lay devastated, and an opportunity to re-plan the central areas, particularly the river front, opened up. The government, however, decided to take up only the problem of flood control and for

that purpose decided to leave open 150 feet wide area along the banks of the river Mutha, Reservation of such an open strip along the river would have meant waste of valuable space if it was not connected with an overall plan of redeveloping the devastated area. A total plan of reconstruction, on the other hand, could have included, not only safety measures to avoid loss from floods but also prescribed the mode of houses, the provision of amenities like shops, open spaces, etc., in this area. The open space in flood-line area could have been advantageously used for roads, parks, play-grounds, etc. The government was therefore urged to create an autonomous town-planning authority with adequate powers to deal with all these problems in a co-ordinated manner. The government, however, created an authority with very restricted powers. The main task of the authority was to find alternate housing sites for the house-owners displaced due to imposition of the flood-line.

Though Mutha river development bill was passed by the government in September 1961 with a view to prohibiting any building-construction along the river-front, a firm policy of development of the areas adjoining the river banks was never spelled out. In the meanwhile, it became apparent that in spite of the rehabilitation schemes a substantial number of families could not be provided with accommodation. Consequently the Poona Municipal Corporation permitted the former residents to construct temporary shelters within the flood-line area and with increased delay in the matter many others erected unauthorized structures also. The authorities were not able to provide alternative sites to the land-owners, and gradually, public pressure to repeal the act incorporating provisions about the flood-line altogether, mounted. The government did not have the means to undertake the expensive scheme of river improvement and appeared to be almost waiting to shake off the responsibility of Mutha river flood control. Giving the excuse of public pressure (which was not heeded in 1961), government repealed the act in 1965. After imposing hardship for four years on a large number of affected citizens, the problem of flood control was left unsolved allowing unplanned, haphazard development along the river front, unwholesome than before.

Extensive slum areas in the central part of the city located along the river banks were destroyed in the disaster. As these areas came within the flood line, it was hoped that with the prohibition of building within the flood-line area the slums would not crop up there and better arrangements could be made for the erstwhile slum dwellers. However, failure of the government to impose restrictions within the flood-line area made it possible for the slum dwellers to put up structures on the same old sites and the slums are re-established at the original sites.

In fine the Panshet calamity opened up the possibility of redeveloping the central city area in a planned manner. However, the great opportunity of planned development of the river front was allowed to slip away and the problem of slum resettlement was left untackled. The principles of proper land-

use pattern were not considered either in allocating the land for housing purposes or in the layout of the residential colonies themselves. In effect the valuable land resource was used wastefully. These are the consequences of taking short-sighted measures in an un-coordinated fashion. As a result of this the problems of housing in the city, viz., congestion and overcrowding, sub-standard housing and slums, have become all the more serious.

CHAPTER VII

Housing Situation in Poona : Retrospect and Prospect

DESTRUCTION OF some of the central areas of the city in the Panshet disaster and subsequent displacement of a large number of families led to a serious deterioration of the housing situation in Poona. [The disaster, however, opened up an opportunity for redevelopment of some of the old and over-crowded areas of the city.] The schemes undertaken by the government and some other agencies, while augmenting the supply of housing in the city, failed to take into account the consequences of the rehabilitation work on overall development of the city. In reality the rehabilitation programme, while solving partly the problem of housing the dishoused families in Panshet disaster, created another set of problems. In this chapter an attempt is made to study some of these problems which may aptly be called "problems of rapid development" of a growing city.

Rapid growth of Poona city in terms of industry and business dates from the beginning of the Second World War. Establishment of defence installations and allied industries including civil and military contracts heralded an era of growth. Another spurt of industrial expansion came in with the establishment of government penicilline and antibiotic factory in Pimpri in 1954. The region between Pimpri and Chinchwad, eight miles to north-west of Poona on the Bombay-Poona highway was well suited for industrial development because of the availability of essential utilities like water, power and good rail and road communications. Industrial development was encouraged on the south-eastern side of the city with the inauguration of Hadapsar Industrial Estate by the Poona Municipal Corporation. Since 1956, a number of factories have been established in this estate. After 1960 some factories were established along Nagar Road and in Kothrud. Development of new factories gave an impetus to establishment of ancillary and secondary processing units. In 1964 there were 57 factories in and around Poona each employing 200 or more persons, 425 factories each employing workers between 20 and 200, and 644 establishments with less than 20 persons employed in each,¹

With the establishment of new employment centres in and around Poona a large number of people from *mofussil* areas migrated to the city with a hope of securing employment. Consequently the population of the city recorded a phenomenal increase of 70 per cent during the decade 1941-51. The influx of refugees from the Punjab after partition of the country also con-

¹ The Poona Labour Market (A Pilot Survey) Chap. I, page 1, The Directorate of Employment, Govt. of Maharashtra, Bombay, 1965 (unpublished report).

tributed to the population rise. Between 1951 and 1961 the population of Poona increased from 5,88,545 in 1951 to 7,21,698 in 1961.

Growth of population, consequent increase in commercial activity² and the growth in the industrial activity have resulted in shortage of developed land, scarcity of housing accommodation and pressure on amenities, particularly water. The land near the fringe of the city, where new factories are being set up is not provided with facilities of tap water, sewerage and adequate transport facilities. It is, therefore, difficult to establish new residential areas on these locations. Moreover, the factories do not provide housing accommodation for their workers on any appreciable scale.³ Inevitably the workers seek housing accommodation in Poona city. It was noted in a recent study of industrial workers that 72 per cent of the workers employed in industrial units in and around Poona were residents of the city areas. Eighty per cent of the industrial workers staying in the city worked at places located beyond the limits of the city area⁴. About 6,500 workers daily travelled from Poona to work at Pimpri and Chinchwad and 26,000 workers to work at Dapodi and Kirkee areas.⁵ These workers who stay in Poona, mainly due to lack of suitable housing and other amenities near the place of work, constitute major burden on the city.

It is not surprising that congested living is the result of these conditions. Hemmed in from all sides the growing population is occupying every nook and corner of the city area. In 1941 average gross density of population in Poona city area was 140 persons per acre and a majority of wards accommodated less than 150 persons per acre. In 1951 average gross density rose to 200 persons per acre while in 1961 it shot up to 250 (vide Table 7.1). In certain wards, viz., Kasba, Raviwar, Budhwar, Ganesh and Vetal the gross density exceeded 400 persons per acre. Even though the central area of the city accounts for only five per cent of the total Poona Municipal Corporation area, it accommodated almost 70 per cent of its population in 1961. The remaining 95 per cent of the area contained only 30 per cent of the population. The density of population was as low as six persons per acre outside the central city area (vide Table 7.2). Distribution of population is thus very uneven within the Poona Municipal Corporation area. Attempts will have to be made to de-

² There were about 5000 shops in Poona in 1937, the number increased to about 13,300 by 1963. The number of shops in the central city ward, viz., Budhwar, Raviwar, and Shukrawar increased from about 2300 to 4,400. The number of small establishments increased from about 1,800 in 1937 to about 2,600 by 1963.

³ Only 7 factories have provided accommodation to a total of about 180 worker families (1964). In addition flats and bungalows are provided for officers. Some factories have advanced money to Maharashtra Housing Board as their contribution to Subsidized Industrial Housing Scheme. Tenements built are mostly near the factory site.

⁴ The Poona Labour Market Survey, *op. cit.* Chapter IV, pp. 4-5

⁵ *Ibid.*

Table 7.1 : DISTRIBUTION OF CENTRAL CITY WARDS ACCORDING TO GROSS DENSITY

Gross Density (Persons per acre)	Year			
	1931	1941	1951	1961
	<i>No. of wards</i>			
40 — 100	9	1	—	—
101 — 150	1	8	1	—
151 — 200	5	2	5	1
201 — 250	—	4	4	9
251 — 300	—	—	—	—
301 — 350	—	—	1	—
351 — 400	—	—	4	—
401 +	—	—	—	5
Total	15	15	15	15
Average Density	94.27	139.23	208.28	250.27

populate the overcrowded central city area and to distribute the over-spill in the outer circle. Unless the outer circle is developed and provided with water, power and roads, so as to facilitate establishment of new residential areas, the pressure of population on the central area will continue to mount.

The phenomenal growth in population and the shortage of residential accommodation have led not only to congestion but also to creation of slums. The population of the city began to increase rapidly as waves of job-seekers from surrounding rural areas stormed its gates in search of jobs. These migrants generally arrived without assets or skill and usually continued to live at a marginal level. So long as they remained poor, they could not enter the market for housing. Self-help could be relied upon only to erect shacks. The emergence and existence of slums show that the city is not able to produce adequate housing at a cost that its rank and file can afford. The new slums are coming up for they have a use at the price. The old ones survive as nothing cheaper can replace them. Emergence of new slums must be discouraged by preventing urban agglomerations. This can only be done if the slum eradication scheme is integrated into comprehensive regional and city planning programmes.

The brief discussion of the problems of development experienced presently by Poona city revolves round two central problems, viz., (1) congestion, meaning thereby shortage of space and pressure on housing accommodation, and (2) unplanned growth and consequent necessity of integrated, comprehensive urban planning rationalizing the land-use pattern.

Table 7.2 : AREA AND THE POPULATION IN DIFFERENT SECTIONS OF POONA IN 1961

<i>Part of the city</i>	<i>Area (acres)</i>	<i>Population</i>	<i>% of area</i>	<i>% of population</i>	<i>Density of population</i>
Central city area	1650	412658	4.24	57.18	250.09
Other areas	30542	184766	78.53	25.60	6.05
Total Poona Municipal Corporation area	32192	597424	82.77	82.78	18.56
Poona Cantonment	3430	65721	8.82	9.11	19.16
Kirkee Cantonment	3270	58553	8.41	8.11	17.90
Total Cantonment area	6700	124274	17.23	17.22	18.54
Grand Total	38892	721698	100.00	100.00	18.56

An attempt is made here to examine these problems more closely and suggest certain remedial measures.

The housing shortage, perhaps, is one of the basic problems created by rapid and uncontrolled urban growth. The situation of the house and its environment affects the physical and mental condition of the individuals. Unless the house is fit for human habitation, unhygienic conditions, ill health, crime and juvenile delinquency will be the inevitable results. The productive efficiency, social responsibility and political consciousness of ill-housed populace is bound to be of a very low order.

The current housing shortage in Poona has its origins in the hectic days of the Second World War when the city faced a massive influx of population. Year by year the housing shortage went on aggravating. The rate of building construction could not keep pace with the rate of population growth. The severe shortage of building materials during the war period almost halted the construction of residential buildings. The shortage of certain materials continued even after the end of hostilities. With the initiation of five-year plans attractive investment-opportunities opened up in several other fields. Investment in housing on the other hand faced difficulties such as increasing urban taxes, rent control, etc. Consequently, whatever construction took place was mainly (barring the accommodation provided by the government to their employees) within the reach of the wealthier classes and satisfied the need of a small fraction of the total population. Even for middle-income-group families overcrowding and congestion became the usual lot. New living space was not generally available at the price they were prepared to pay. Their income which is largely derived from salaried jobs, could hardly keep pace with the rising costs. The only alternative for them was to squeeze in the available space. Rooms were added in the old structures or existing rooms were divided to accommodate more families. Congested living exerted great pressure on the urban amenities and led to rapid deterioration of existing buildings due to overuse and neglect. The conditions of housing for the lower-income families became all the more intolerable. They are forced to live in shacks and huts, with the result that there is a continuous expansion in the population of slums.

Another factor, perhaps peculiar to Poona, has inhibited development of housing in Poona. Defence establishments are located virtually on all sides of the city, occupying some of the best residentially suited land. These establishments have continued to acquire more land in the vicinity of Poona. Nearly one third of the area within Poona Municipal Corporation limits and the two Cantonments is reserved for military purposes. Moreover, acquisition of land has proceeded without any consideration of the growth and needs of the city and has proved a serious hindrance to the development of the city itself.

Table 7.3 : DENSITY OF OCCUPANCY IN POONA IN 1937, 1954 AND 1961

Type of dwelling	1937			1954			1961		
	% of families	% of persons	Persons per room	% of families	% of persons	Persons per room	% of families	% of persons	Persons per room
One room	56.4	46.0	3.22	52.5	42.9	3.74	60.5	53.2	4.44
Two rooms	25.1	26.9	2.12	27.4	30.8	2.59	23.5	25.9	2.78
Three rooms	8.9	11.8	1.73	10.2	13.2	1.95	8.8	10.3	1.98
Four rooms	4.1	6.0	1.46	4.6	6.3	1.57	3.6	4.4	1.55
Five or more rooms	5.5	9.3	1.34	5.3	6.8	1.16	3.6	6.2	1.37
Total	100.0	100.0	2.22	100.0	100.0	2.49	100.0	100.0	2.96

Source : Poona — A Resurvey : N. V. Sovani et al., Gokhale Institute of Politics and Economics, Poona, 1956, p. 406

The pressure on housing is reflected in the increase of the number of people who are unable to secure housing accommodation and are driven to make-shift arrangements. The number of hutment dwellers was estimated at 5,000 persons in 1937. The number increased to 36,700 persons by 1951, according to a survey conducted by the Poona Municipal Corporation, while in 1965 the number of hutment dwellers was estimated at 65,000 persons. Such a large increase in the number of homeless who are forced to live in slums shows how rapidly the housing situation is becoming grave.

In addition to the housing required to provide minimum shelter to the slum dwellers and to new families, the need for replacing the old houses is also substantial. A sample survey of houses conducted by the Poona Municipal Corporation in 1960 revealed that 16 per cent of the houses had expected life of less than five years and about 65 per cent had life expectancy from five to 20 years. The low expectancy of life of a large number of structures makes the problem of housing all the more acute.

Future requirements:— With a view to getting some idea about the housing shortage, which is likely to develop in Poona if the present trend of population growth continues, estimates of housing need are made. For this purpose, it is necessary, in the first instance, to know the projected population and the number of households at some future date, say, 1981. Assuming that the birth-rate will remain constant till 1981, the estimated population for 1981 came to 12,20,600 persons.⁶ For estimating the number of families the headship ratio, viz., number of households per adult male above 25 years of age as observed in 1961 Census is used. The number of families in 1961 was 1,45,220 and the headship ratio was 0.87. On the basis of this ratio the estimated number of families in 1981 came to 2,53,820. This means that there will be an addition of about 1,08,600 families during a period of two decades or 5,430 families per annum, and additional accommodation will have to be provided to that extent.

The above figure gives the total need for new housing accommodation. It is necessary to know further the quantum of different types of housing which will be needed in future. The families from different income-groups will have varying rent-paying capacity and will, therefore, be in a position to rent in different types of accommodation. As the rent-paying capacity and the income are closely linked, information regarding the income distribution of the families could be used for evaluating the type of housing accommodation needed. Recent data relating to income distribution, however, are not available. The latest information regarding the income distribution available for Poona is for the year 1954 when Resurvey of Poona was conducted by the Gokhale Institute. The income distribution of the sample families from Poona based on

⁶ Dandekar K. and Pathak M. V. : 'Model for a Growth of a City,' unpublished paper, Gokhale Institute of Politics and Economics, Poona.

1954 income-data is presented in Table 7.5. The information about the income distribution for 1954 could be used with reference to a future date on the assumption that the relative strength of different income groups will remain the same and the rise in income and in the cost of new accommodation will be more or less of the same magnitude between 1954 and 1981.

Table 7.5 : INCOME DISTRIBUTION OF SAMPLE FAMILIES* IN POONA

Annual family Income (Rs.)	Per cent of families	Maximum rent-paying capacity	
		Annual (Rs.)	Monthly (Rs.)
0 — 249	4.74	25.00	2.08
250 — 499	9.72	75.00	6.25
500 — 749	13.59	125.00	10.42
750 — 999	17.42	175.00	14.58
1000—1249	12.36	225.00	18.75
1250—1499	6.81	275.00	22.92
1500—1749	7.05	325.00	27.08
1750—1999	5.80	375.00	31.25
2000—2249	4.03	425.00	35.42
2250—2490	3.16	475.00	39.58
2500—2749	2.66	525.00	43.75
2750—2999	1.28	575.00	47.92
3000—3999	4.83	700.00	58.33
4000—4999	2.68	900.00	75.00
5000—9999	3.00	1500.00	125.00
10,000 and more	0.87	—	—
Total	100.00	—	—

* Processed from the data collected for the Resurvey of Poona.

On the basis of information available in respect to prices of land and costs of building construction in 1954, the monthly economic rent of minimum accommodation, viz., one room of 100 sq.ft. with common sanitary facilities was found to be about 14 rupees. It will be observed from the income distribution for 1954 that the families in the first three classes, i. e. up to the limit of annual income of 750 rupees were not in a position to pay the economic rent of newly constructed one-room tenement. These formed about 28 per cent of the total families and were mainly in occupations like unskilled labour, artisan work, small business and lower-salaried jobs. Most of them lived in old residential quarters and some stayed in hutments. The families in the next three groups, i. e. with annual income between 750 and 1,500 rupees forming 36 per cent of the total families, could afford to pay economic rents of a one-room tenement or a room and a kitchen. Those with income above 1,500 rupees per annum could be put into a third category. They were

in a position to pay the economic rent of at least two-room tenements and formed another 36 per cent of the total families.

After considering the nature of effective demand the supply position must be considered. The number of tenements which are likely to be available if no special efforts are made, is estimated on the basis of data available through the Poona Municipal Corporation records.⁷ It was found that during the period 1956-65 average number of new residential constructions per year came to about 300. The number of rooms in new houses and those made available through extensions came to about 2,000 per year. During 1962-65 the tempo of construction was relatively high; about 3,800 rooms were made available annually. The new tenements were mainly in units of two-room and three-room flats satisfying principally the needs of families in the upper quartile of the total income-range. Assuming that the same rate of construction as observed in the last three years will continue, it is estimated that at the rate of two rooms per family, accommodation for 1,900 families will be made available in Poona through private and co-operative building activity. It was seen earlier that annually there will be a need of about 5,400 dwellings, of which about 35 per cent will be met through the private building activity if the rate of construction observed during the period 1962-65 is maintained. This means that every year the need of about 3,500 families will remain unsatisfied. These hypothetical calculations, with all their limitations, are useful for indicating the dimensions of housing problem and emphasize the need for urgent public action in the matter of housing a large section of population.

Public efforts in housing

Till 1952 the government activity in this field was mainly confined to the provision of housing accommodation to a part of their employees. In 1952 Central Ministry of Works, Housing and Supply was created and was entrusted with the implementation of the housing policy of the Five Year Plans. The Ministry formulated various housing schemes such as Industrial Housing Scheme (1952), the Low Income Group Housing Scheme (1952), The Slum Clearance and Improvement scheme (1956) and The Middle Income Group Housing Scheme (1959).

In Poona, as in other big cities, housing accommodation has been provided by the government in a small measure. The government activity was mainly

⁷ It is necessary to obtain permission from the Corporation for any construction activity—new construction, remodelling, small additions and building temporary structures, etc. Details about the area of the plot, proposed plinth area, plan of new construction, date of commencement and completion of work are available with the Corporation for each case. These records are used for estimating the volume of current construction activity. Date of completion of construction is used for classifying the works according to period. All the structures built for residential purpose—new constructions as well as extension work in existing buildings in private and co-operative sectors are taken into account. Demolition and re-construction is left out of account, assuming that it is self-maintaining.

confined to providing housing accommodation to the government employees. The Central Railways, the State Home Department (Police), the Autonomous Corporations like Hindustan Antibiotic Factory or the Maharashtra State Road Transport Corporation, The National Chemical Laboratory, etc., have provided accommodation to their employees mostly near the places of work. They have provided about 2,500 tenements in the last 10 years, and some of them have plans to provide additional accommodation.

Government of Maharashtra provides housing accommodation to general public through the Maharashtra Housing Board. The Board has provided in Poona 732 tenements under Subsidized Industrial Housing Scheme, 1,800 tenements under Slum Clearance Scheme, 901 flats under Low Income Group Housing Scheme, and 24 flats under Middle Income Group Housing Scheme. In all 3,457 tenements have been provided during the last 10 years. Of these about 2,000 were built to provide accommodation to the families affected in the Panshet disaster. The net additional accommodation provided was to the tune of about 1,450 tenements.

The Poona Municipal Corporation has also provided accommodation, under Low Income Group Housing Scheme and under some of their own schemes, in all for about 1,350 families.

The quantum of public effort is obviously very meagre compared to the needs of the city. Moreover, the accommodation provided is of such a type that it is not within the reach of the families in the lower quartile of income distribution. With such a great pressure on housing it is necessary to prepare a programme which makes provision of minimum accommodation to maximum number of families.

Necessity of providing housing to low-income families became particularly acute after the Panshet dam disaster. A housing programme was speedily finalized and launched. It would not be out of place here to consider the merits and demerits of these housing schemes specially devised for low-income affected families.

Assessment of housing schemes undertaken after Panshet disaster

The shelters built under different schemes were not strictly comparable as some provided temporary accommodation while the others permanent. The relative merits of these schemes could be considered only by taking into account the quality of housing, the availability of various facilities and the cost structure. Such a comparison will be useful for indicating the types of housing feasible under the present conditions when the housing problem needs to be solved on an emergency basis.

Tenements built under all the schemes were one-room tenements. In Slum Clearance Scheme (henceforth referred to as S. C. tenement) a partition wall divided the room into two portions, one used as a living room and the other

Table 7-6 : AREA, FACILITIES AVAILABLE AND COST OF NEW HOUSING SCHEMES

Type of accommodation	No. of families accommodated	Area per family		No. of families sharing facilities			Cost of building per family (Rs.)
		Plinth area sq.ft.	Living space sq. ft.	Water tap	Bath-room	Latrine	
Dormitory	1988	178	138	8	1	4	1670
Plinth tenements	1420	243	181	2	1	2	2110
Nissen Hut	198	273	252	5	2	2	4020
Round Hut	388*	108	108	—	—	—	270
Matting Hut	1372*	144	144	—	—	—	175
Slum Clearance tenements	1800	273	202	1	1	1	3050

*Temporary Accommodation

as a kitchen. In plinth tenements the total area included the area occupied by the half-closed verandah. As two sides of the verandah were open, it could not be treated as a separate room.

If area available per family is considered, Nissen huts and S. C. tenements on the one hand, and dormitories and tenements on plinth on the other, are comparable. But there are considerable differences in the cost of construction of these tenements (vide Table 7.6). The difference in cost between dormitories and plinth tenements is largely accounted for by the inferior material used in the former. In addition, relatively better sanitary facilities are provided in plinth tenements. The cost of construction is higher in the case of Nissen huts as compared to that of S.C. tenements, even though Nissen huts were built without foundation by using only galvanized tin-sheets; bath-rooms and latrine were shared. The S. C. tenements on the other hand were built with a solid foundation, brick walls and A. C. sheet roofing. Independent attached bath-room and latrine were also provided. The costs of construction of matting huts and round huts were quite low as they were conceived as purely temporary structures.

Table 7.7 : NEW HOUSING SCHEMES : DURATION AND COST

Type of accommodation	Duration (years)	Annual cost per family Rs.	Annual cost including main-tenance cost Rs.
Dormitory	25	133.80	167.20
Plinth tenements	30	153.25	195.40
Nissen Huts	15	414.80	495.35
Round Huts	5	64.10	69.50
Matting Huts	1	185.50	189.00
Slum clearance tenements	50	202.60	261.75

In view of the variations in the quality of various structures, it is important to take into account the life of the structures built under various schemes. Estimates of the life of each structure were obtained after taking into consideration the type of material used and the quality of workmanship. The annual cost per family for the different structures is shown in Table 7.7. The annual cost is calculated assuming that the salvage value of the structures is zero and the rate of interest is six per cent. Allowance for the maintenance charge at two per cent of the capital cost is also made in calculating the annual cost.

If the annual cost per square foot of carpet area is considered it is more or less comparable for the three schemes, viz., plinth tenements (Rs. 11), dormitories (Rs. 12) and S. C. tenements (Rs. 13), while the cost is as high as Rs. 19.6 in the case of Nissen huts. The scheme of dormitories which provides

Table 7.8 : NEW HOUSING SCHEMES : ACCOMMODATION AVAILABLE AND LAND USE

<i>Type of accommodation</i>	<i>No. of buildings</i>	<i>Total accommodation available</i>	<i>Area used for building (acres)</i>	<i>Buildings per acre</i>	<i>Families per acre</i>
Dormitory	125	2000	51.0	2.4	38
Plinth tenements	710	1420	71.0	10.0	20
Nissen Huts	100	200	11.0	9.0	18
Round Huts	97	388	N. A.	N. A.	N. A.
Matting Huts	343	1372	42.0	8.0	32
Slum clearance tenements	183	1800	87.5	2.1	17

minimum facilities, viz., a room per family and common sanitary accomodation is the least expensive scheme from the point of view of initial capital cost per family as well as the annual cost.

In respect of purely temporary schemes, viz., round huts and bamboo-matting huts the initial capital cost is naturally very low. However, when the annual cost is taken into account the matting-huts appear to be expensive. Temporary schemes which use such flimsy material and which have a very short duration of life (less than a year) prove to be quite expensive, and cannot be resorted to except in emergency. It may be worth while in a crisis to build such structures which could be erected speedily and solve the problem of shelter for the time being. In the meantime the authorities could think out and execute schemes of more permanent nature. The scheme of round huts is superior to the scheme of matting-huts as a stop-gap arrangement as the duration of life of these huts could be extended, if necessary. Assuming a life of five years for these huts, annual cost works out to Rs. 69.5 only. If common sanitary facilities of permanent nature (assumed life of 25 years) are included in the scheme the cost per family per year would come to Rs. 92.00. These facilities could be used when round huts are replaced by permanent type of housing. The initial capital cost then works out to Rs. 500 per family, which is one sixth of the capital cost of S. C. tenements. The different housing schemes varied in respect of land utilization also (Table 7.8). Nissen huts used wastefully some of the best available land from the point of access to the central city area. The residential density was only 18 families per acre for Nissen huts. If multiple storeyed buildings were built instead, it would have solved the problem of accommodation of many more families, utilising the land in an optimum manner. The residential density is rather high (38 families per acre) in the dormitory tenements. The layout of the dormitory and plinth tenements was not prepared beforehand, and the structures were placed on the site as they fitted. As the plinths accomodate only two families each and the sanitary blocks are detached, considerable space in between the various small structures is wasted. Even though the residential density is low (20 families per acre) in plinth tenements, the open space cannot be used profitably as it is scattered in small pieces in between the structures. From the point of view of land utilisation, the slum clearance scheme is better planned. Row houses are built, which leads to a saving of both the land and the building material and contiguous space is left for recreational purposes.

In a developing economy, where there is generally a great pressure on the capital investment in the initial stages, it seems advisable to choose a scheme which involves the least initial investment. On this and other counts such as life expectancy, utilization of land, etc., the scheme of Nissen huts appears to be most expensive and wasteful. While the schemes of dormitories and plinth tenements commend themselves on account of their low costs, the general layout of both types of tenements leaves much to be desired. The cost of

construction of S. C. structures can be reduced if common sanitary facilities replace independent ones. The flexible scheme of round huts may prove useful for the lowest-income families, such as slum dwellers.

It is thus clear that it would have been possible to lower the costs and provide better and permanent accommodation to a larger number of families if better planning had preceded implementation of the schemes. This, however, was impossible, as patchwork of different schemes unrelated to the total development of the city was sought to be implemented. A comprehensive housing programme which not only takes into account the needs of families with varying means, but also considers the impact of the housing programme on city development will have to be formulated. If the programme pays attention only to the needs of housing of low-income families, other groups will compete and exert pressure to secure land, building material and skilled labour. The programme for housing the low-income families might suffer due to such competition.

Essentials of a housing programme

Land is the basic requirement for housing and the problem of land has become very intricate in Poona. The Panshet calamity aggravated the situation. The land prices started rising by leaps and bounds since the disaster, and within the span of the last five years they have risen by 300 to 400 per cent. With such a phenomenal price-rise the government is finding it increasingly difficult to acquire land for initiating their own housing schemes or any other programmes, viz., giving alternate sites to owners of land in floodline area or to make land available to co-operative societies. Unless certain bold measures to check the spiral of land values are taken the rise would continue. The increase in the population is continuously exerting pressure on housing and consequently demand for land is increasing. Moreover, with inflationary pressure, land is the best asset to hold as it is not depreciating in value like other assets. This leads to speculative land-holding. Especially as the municipal tax on vacant non-agricultural plots is very low, speculative investment in land is quite attractive. Suitable measures of taxation on vacant plot could be designed to check speculative land-holding. Imposition of betterment levy may also help to keep down the prices. Amount of betterment levy collected and compensation paid for acquisition must be kept in balance if any large public schemes are to be put into action effectively. Suitable basis for levy and compensation must, therefore, be evolved. Redevelopment of slum areas, remoulding the decayed part of the city, development of township near industrial areas and largescale housing programme for the lower-income families, all such schemes necessary to solve the housing problem in the city, are possible only if land could be made available at required places and in required dimension. Therefore, overall land-use plan need be prepared reserving different areas for various housing programmes and other uses. In the absence of full control over land-use by public authority, planning efforts would be defeated.

Another important problem is of procurement of building material for housing. Chronic shortages of various building material thwart the building activity. In view of general limitation imposed by financial and physical resources on total housing output, construction of palatial houses by better-off families might mean that the opportunity to provide housing for those who most need it, is circumscribed. Prohibition of luxury housing until the top priority schemes received the supply of materials and labour may follow logically. For economising the use of scarce material a scheme which gives special subsidies for the use of certain materials and for structures designed so as to lower the cost and penalizing those who make more use of scarce material, could be devised.

Extensive research is needed for providing substitutes for scarce material, making best use of local materials and designing houses in such a way as to minimize the use of scarce or expensive material. This is necessary to keep the cost at the minimum and to lessen the pressure on scarce material.

Considerable thought must be given to the problem of planning the residential areas. The central parts of Poona city were developed almost without any rules and regulations and most of the available land was fully built up. The open area available was mainly by way of communication channels, viz., roads and lanes. Such high densities were detrimental to health as it was impossible to provide adequate ventilation and light in the dwellings and to provide open space in the form of play-grounds and parks for healthy recreation. With the introduction of town-planning schemes in the thirties, the main consideration was of health. In contrast to the central city area where there was acute over-crowding, the houses in the suburban areas were spread over extensive areas. New rules and regulations demanded that only one third of the plot could be built with floor space index put at one. Moreover it was obligatory to keep open 10-foot strips on both the sides and 15-foot and 20-foot strips in the front and at the back of the house respectively. This has led to a sprawl of the suburban development over an ever-increasing area. Moreover, the suburban areas do not have adequate facilities and in effect they have developed as functionless suburbs. It is, therefore, important to revise the Town Planning Regulation and make such provisions that it will be possible to prescribe low gross density but higher residential or net density. It is desirable to develop residential area not as detached houses but as row houses or group houses which may in part be multi-storeyed. Such a development has a number of advantages over detached housing. Detached housing with 10-foot open strip on the sides leads to wider road frontage per house. The increased road length means increased cost of construction of roads and footpaths, water pipe lines, sewerage lines, electric and telephone connections. The costs of construction as well as of maintenance of all these services increase considerably. In addition the valuable and scarce land resource gets wasted unnecessarily.

Suitable changes in house design must, therefore, be effected abandoning

will increase the receipts of house-owners and part of these receipts may be used for the maintenance of the house. Increased rents will also lead to an increase in the municipal tax receipts. These additional resources may be used for development work by the local authority.

The last but the most urgent problem of housing is the problem of providing proper shelter to the erstwhile slum dwellers. A programme for systematic rehabilitation of the slum dwellers has to be undertaken without any delay. Provision for at least 65,000 persons, or 13,000 families living in shacks, has to be made forthwith.

A kind of phased programme spread over a period of, say, 10 years is needed for slum clearance. The first phase could be improvement of the present slums, which means provision of basic amenities like water-taps, sewerage and some minimum pavement so as to eliminate filth to a certain degree. The problem of slum improvement is rather complex and involves a number of different difficult issues. Many of the present slums in Poona are located on private lands and it will be necessary either to purchase the land from the owners (which will involve substantial expenditure as many of the slum areas are near central area of the city where land values are high) or else make certain kind of lease or other agreement. As this phase is meant to be temporary, facilities made available at the site may not be useful in the alternative use of the land when the existing slums are removed.

The next phase would be of providing alternative shelters to the slum-dwellers. These may be initially provided in the form of temporary shelters to be replaced in due course by permanent type of accommodation. The sanitary facilities provided in this area may, however, be of permanent type. These could be used when temporary shelters are replaced by permanent housing. A number of problems arise at this stage. Alternative land must be available at locations convenient for the slum-dwellers in relation to their work-place. Otherwise it is very difficult to persuade the slum-dwellers to move to new areas. Besides the convenience of slum-dwellers, other factors like the overall land-use plan, ease of providing facilities like water lines, sewerage, etc., have to be taken into consideration.

In the third phase permanent shelters would be provided. The design of these tenements should be flexible so that initially provision is made only for minimum accommodation, viz., one room which might be joined in future to a second room providing thereby two-room tenements.

Attempts are sometimes made to eradicate the slums from a given site without making alternative arrangements. Such removal of slums without provision of alternative housing inflicts great hardship on slum-dwellers and forces them to erect huts elsewhere. This would never eliminate the problem. Even if alternative accommodation is provided the slum-dwellers may not be willing to move to a new location or to pay rents higher than the exist-

ing ones. Under such circumstances education and responsible leadership can alone eliminate the hostility among the slum-dwellers. Education is also very important in keeping the colonies hygienic and clean. Even if water and good sanitary facilities are provided the maintenance of cleanliness depends on its proper use. Thus the problem of slum improvement cannot be solved by mere change in physical environment. It also involves social and educational efforts if it is to be successful.

Housing costs :

On the basis of the costs of different schemes executed after the Panshet disaster, the dimensions of housing problems in Poona are measured in monetary terms. It was seen earlier that annually 5,400 additional tenements would be required and the commercial and co-operative activities will meet the demand of about 1,900 families. Of the remaining families about 2,000 families could rent in one-room tenements if economic rent is charged. However, due to scarcity conditions and pressure on housing accommodation market rents are noted to be higher than the economic rents. These families will have therefore to be provided housing like S. C. tenements mainly through public agencies or through some non-profitmaking housing organization. The third group which includes about 1,500 of the total families will not be in a position to pay even the economic rent. Minimum accommodation, viz., dormitory type of tenement, should be provided to those families, so that the element of subsidy could be kept at the minimum. The total cost of providing housing to 3,500 families could be estimated on the basis of construction costs of schemes implemented after Panshet disaster. The cost of S. C. tenements and of dormitory was Rs. 3,050 and Rs. 1,670 respectively per family. The total cost of providing this type of housing to 2,000 and 1,500 families works out to about Rs. 61,00,000 and Rs. 25,00,000 respectively.

In addition, provision for the improvement of slum areas and construction of temporary structures has to be made. If it is decided to rehabilitate the present slum population of 65,000 persons in the period of 10 years, i. e. providing annually for 6,500 persons or 1,300 families with temporary shelter, viz., round hut with permanent sanitary facilities which is estimated to cost Rs.500 per family, the annual cost will work to 6,50,000 rupees.

As an immediate interim measure the work of slum improvement has also to be taken up. Most of the areas where the slums are at present located are within the developed areas of the city. It will be necessary to extend water connections and sewerage system within the slum areas. The estimated cost of providing one unit of sanitary block between five families and one street water tap between 10 families comes to about 50 rupees per person. Half of this cost is for water and sewerage lines and the other half is for provision of sanitary blocks and water taps. If it is assumed that slum improvement will be

effected for one tenth of the present slum population annually, i. e. 1,300 families or 6,500 persons, the cost works to 3,25,000 rupees.

The total cost of construction for providing housing to 3,500 additional families annually and rehabilitating 2,600 slum-dwellers comes to about 96 lakh rupees. This figure is calculated at 1961 price level. The cost of construction has increased considerably in the last five years and continues to rise. The cost of the project will increase to the extent to which prices soar up.

The above calculations do not take into account the cost of land. With a density of 25 families, or 125 persons, per acre the land required would come to about 200 acres for new housing. The cost of developed land on outskirts of the city cannot be put below one rupee per square foot, i. e. about Rs. 45,000 per acre. The cost of land works to Rs. 90,00,000 for new housing. In addition arrangement for leasing-in the land will have to be made with the private owners where slum-improvement programme is to be taken up. It will be impossible to acquire land at the prices assumed above unless positive measures are taken up to check the spiral of land values.

It will be evident from the above that the problem of providing minimum shelter to the population in Poona is stupendous and intricate. It calls for very bold land policy, preparation and proper execution of rational metropolitan plan with the co-operation of all the agencies—the government, the Poona Municipal Corporation, the military and all the private bodies. Positive action and initiative on the part of government is essential for launching public housing programme. Unless the housing schemes are realistic and modest it will be impossible to touch even the fringe of the problem. Comprehensive and co-ordinated planning alone will make possible avoidance of waste at every stage of execution. Continuance of uncontrolled and unplanned growth of the city would complicate the problem further and would make solution of the problems all the more difficult.

APPENDIX 'A'

A NOTE ON REGISTRATION OF AFFECTED FAMILIES

To ensure proper and systematic distribution of aid to the affected families a comprehensive register of all these families was necessary. However, no attempt was made for preparing such a list in the initial stages. Ration was distributed with very nominal checking; the checking was better at some centres and almost absent at others. At the time of distribution of cash doles cursory attempt was made to prepare a list of the affected families. However, the work was carried out with the help of inexperienced volunteers and was not properly guided or supervised, with the result that a proper list was not prepared before the distribution of cash dole. It was, therefore, not possible to ensure that the relief reached only the affected families. In fact, the government was pressed hard to prepare identification cards before distribution of cash or other help, or at least simultaneously with the distribution. Assistance was also offered for undertaking this work. Nevertheless the authorities scarcely paid any attention to the problem at that time. It was only at the end of August that the government entrusted the Bureau of Economics and Statistics, Government of Maharashtra, with the work of preparing family cards. The purpose of issuing identity cards was to facilitate aid distribution. However, as the cards were issued after a major part of aid distribution was over, they proved to be of little value.

The Procedure of registration:—

About 52 senior clerks, drawn from all over the state, were employed to carry out the work of listing the affected families. They were given initial training. Three Mamlatdars were appointed to supervise the work. The overall supervision vested with the officers of the Bureau. The affected people were requested to register their names and addresses, past and present, at the zonal committee offices. The information given by the affected families was recorded on slips. The senior clerks moved in different parts of the city to visit the affected families at their post-disaster addresses recorded on the slips and obtained information about the family composition and the amount of aid received by the family. This information was recorded on a prescribed form.

The work of registration and recording information on slips was taken up in the last week of August, and 14,796 families were registered between 27th and 31st August. Enquiry about the families was conducted by the senior clerks simultaneously and a large number (2149) of slips had to be cancelled as they were in duplicate or the families were found to be non-affected. Subsequently, cards were issued to 12,647 families. Registration work was taken up again for

two or four days at the end of September, at the end of October, and at the beginning of November, when 8,520, 711 and 350 families respectively registered themselves. After completing the enquiry, cards were issued to 6,784 families out of 9,581 families who registered after mid-September. In all 19,431 family cards were issued to families staying outside the relief centres. In addition to these, in September 6,732 cards were issued to families staying at the relief centres, and additional 101 cards were issued at relief centres in November 1961. Thus the total number of cards issued was 26,264 (19,431 + 6,833).

The families were considered as affected if the address entered by them on the slip as their place of residence prior to 12th July was found in the list of affected houses. No use was made of the information obtained previously through cash-dole forms and ration forms. The aid amounts received through government and other sources were also recorded in the cards. These amounts were taken verbatim from families themselves and were not verified or checked. A random survey of affected houses was carried out to verify whether the house-number reported was really affected and whether the family in question was staying in the affected part of the house. In the case of families living in huts in the slum area, spot verification was not carried out. It was reported that in some cases, the senior clerks filled in family cards on the basis of information available on slips.

Thus the system of listing the families followed by government left several loop-holes. It was easy for the unaffected families to obtain help by notifying false addresses as checking at the past address was cursory. Later on each applicant was required to obtain a certificate from Corporators so as to avoid help going to unaffected families. Malpractices were reported even in bestowing these certificates. The officials in charge of the distribution of aid reported that about 12 to 15 per cent of the total aid-receiving families might have received aid through false information, corruption, etc. Government decided to recover the amount in such spurious cases. The amount was recovered in about 100 cases.

The Gokhale Institute of Politics and Economics collected comprehensive information about the affected families. A complete list of the families who stayed at relief centres, and those who took meals at kitchen centre was prepared by visiting all these centres. In addition a list of families who stayed outside the relief centre and obtained cash doles was made. All this information was checked by the investigators from the Institute at the time of the survey of damaged houses.

It was possible to check 13,000 forms of the families obtaining cash dole and it was found that in 35 cases the family had left the place prior to July 1961 and was not living in the affected house at the time of the disaster; 175 families lived in the unaffected part of the house; about 375 families were found to be not residing at the address given by them and were probably spurious cases.

In 250 cases, the pre-disaster address was incomplete and in another 150 cases the address could not be traced. In about 170 cases water level was so low as to have inflicted no damage, and 265 cases were detected where there was duplication. Thus, out of about 13,000 cases which could be scrutinized, about 1,200 or nine per cent were suspicious cases. It was not possible to check the information for about 3,000 families.

Information regarding all the families (except the hutment dwellers) taking resort to relief centres was also checked. In 250 cases the address could not be traced, as information about address was incomplete or wrong. In 210 cases the families could not be traced at the reported address. Forty-one families had left the affected house prior to 12th July and 18 families were from the unaffected part of the affected house. On the basis of above checks the proportion of unaffected families in the total families receiving aid worked to about 10 per cent. This means about 2,600 families managed to take undue advantage of the relief schemes.

An estimate of the affected families was made on the basis of information collected from the survey of damaged houses and the information about families from submerged houses. The estimated number of total affected families was 26,250. However, some of the affected families did not apply for aid. The number of families receiving aid was about 26,500. Of these about 24,000 were actually affected. The proportion of families who did not take aid works to about 10 per cent among the total affected families.

APPENDIX B

Questionnaire 1

SURVEY OF RELIEF CENTRES ORGANIZED FOR THE AFFECTED PEOPLE

1. Name of the Institution where the Relief Centre was located:
2. Address :
3. Date of opening the Centre :
4. Date of closing the Centre :
5. Management of the Centre : Supervisors : Assistants :
Number of persons :
6. No. of persons at the Centre in the beginning :
Male Female Total
7. Changes in the number of inmates residing at the Centre over the total duration of the Centre :
8. Provision of food at the Centre :
Meals Tea Snacks Milk Biscuits Others
No. of times served :
To whom served :
9. No. of rooms and halls used for accommodating the affected people :
10. Type of arrangements made for drinking-water, bathing, washing and latrine at the Centre :
11. Which part of the city and which social class were principally represented among affected people staying at the Centre :
12. Were the inmates asked to work at the Centre? Which tasks were given to them?
13. What type of work was entrusted to paid servants? How many servants were employed for these tasks? What was the rate of payment?
14. Total number of meals served at the Centre :
Total expenditure on meals :
15. Total expenditure involved for purchases of groceries :
16. What were the other items of expenditure? How much was spent on them?

17. Which were the articles supplied by the Government?
Quantity :
Approximate price :
18. Amount of cash advance given by the government for meeting the expenses of the centre :
19. Were donations in cash or in kind received from private institutions or citizens? Of what type? From whom? Their approximate quantity and value.
20. Which were the articles supplied by the government for distributing at the centre? Their approximate quantity and value.
21. How the persons were selected in distributing these articles?
(i) Type of articles distributed :
(ii) No. of persons receiving :
22. What was the expenditure involved in cleaning the buildings and premises? How was it met?
23. Difficulties encountered in administering the Centre :

Questionnaire 2

SURVEY OF INSTITUTIONS RENDERING ASSISTANCE TO THE AFFECTED FAMILIES

1. Name of the Institution :
2. Type of assistance given :
3. Number of families helped :
4. The quantity and amount of assistance :
5. The method of selecting the families for giving assistance.
6. Sources from where cash and other articles were collected for distribution :
7. Estimate of total assistance rendered :
8. Period of distribution of aid :
9. Agency of distribution and procedure of distribution :
10. Remarks ;

Questionnaire 3

SURVEY OF DAMAGED HOUSES

1. House Number and Ward :
2. Name of House-owner :
3. Condition of the House :
(According to Corporation's Classification)
4. (i) Total No. of rooms in the house :
(ii) No. of rooms damaged :
(iii) No. of rooms repaired :
5. Name of the informant :
6. Status of the informant :
House owner/member of the house-owner's family/tenant
7. Information about tenants residing in the house before and after the calamity.
 - (i) Names of tenants living before the calamity
 - (ii) No. of rooms held before the calamity
 - (iii) Present place of residence
 - (iv) If in the same house, number of rooms rented in
 - (v) Whether resorted to relief centre immediately after the disaster.
If not, what were the arrangements made?
 - (vi) Whether applied for accommodation to a co-operative housing society or any other agency?
8. Information about new tenants who came to stay in the house after the calamity
 - (i) Name
 - (ii) Previous address
 - (iii) No. of rooms rented in presently
 - (iv) Whether affected
9. Remarks:

Table 5.12 : ACCOMMODATION PROVIDED FOR DISHOUSED FAMILIES UNDER THE STATE GOVERNMENT SCHEMES UP TO AUGUST 1962

Type of accommodation	Total No. of tenements ready for occupation	No. of tenements actually occupied	Families shifted from					
			Round hut	Mandap	Plinth	Dormitory	Relief centre	Other places
Dormitory tenements	1988	1961	1	245	—	—	1463	252
Plinth tenements	1420	1404	89	1258	—	—	—	57
Round hut	388	374	165	209	—	—	—	—
Nissen hut	198	196	—	—	—	2	—	194
Tenements under : Slum clearance scheme	1104	855	91	475	5	175	—	109
Low-income-group housing scheme	310	140	—	—	—	—	—	140
Subsidized industrial housing scheme	132	31	—	1	—	—	—	30

Errata

<i>Page</i>	<i>Line</i>	<i>In place of</i>	<i>Read</i>
6	Footnote 3	p. 325	p. 326
15	2nd line from the bottom	Railway	Railways
20	Table 3.3, Col. 7	10,000	1,00,000
22	Para 6, line 1	papers	paper
44	Table 3.27, Col. 1, heading	Crop realign	Crop
44	Table 3.27, Col. 4, Total	5,47,700	5,47,000
54	Table 4.3, Col. 9, line 1	—	6
57	Table 4.5, Col. 2, line 5	1	2
57	Table 4.5, Col. 3, line 5	5	6
57	Table 4.5, Col. 6, line 5	9	11
59	Para 6, last line	Table 8	Table 4.8
104	Para 2, last line	25	250
125	Table 7.5, Col. 1, line 10	2490	2499
132	Para 2, line 3	implementaion	implementation

For Table 5.12 see p. 145