नाले व नद्या यांच्यासाठी कालव्यांवर कराव्या
अशा ...-या बांधकामांची संकल्पचित्रे तयार करण्या-
साठी घ्यायच्या पूर व त्याचा जलभार.

(৪) १८४

महाराष्ट्र शासन
पाटबंधारे विभाग,
परिपत्रक क्रमांक एएसआय/५४-१०८६/२६२/(५/८६)-जलआ,
मंत्रालय, मुंबई ४०० ०३२ दिनांक २७ जानेवारी १९८७.

महाराष्ट्र शासनाने सप्टेंबर १९८१ ये जागतिक बँक तहारिप्यात घेतल्यांच्या काल-
व्यांची संकल्पचित्रे, बांधकाम, व्यवस्थापन व देखभाल व इतर सर्व अनुषंगिक बाबी ह्या-
बाबत शासनास सल्ला देण्यासाठी एक तज्ज्ञ मंडळ नेमले होते. अभ्यास करुन शासनास
योग्य अशा शिफारशी करण्यासाठी ने तपशीलवार विषय तज्ज्ञ मंडळाकडे दिलेले होते.
त्यांमध्ये "नाले व नद्या यांच्यासाठी काल व्यांवर कराव्या लागणा-या बांधकामाची
संकल्पचित्रे तयार करण्यासाठी घ्यायच्या पूर व त्याचा जलमार्ग हा एक विषय होता.
तज्ज्ञ मंडळाने शिफारशींसहित आपला अंतिम अध्याय शासनास एप्रिल १९८५ मध्ये सादर
केला. तज्ज्ञ मंडळाच्या शिफारशींचा विचार करुन खालील विषयींचे शासनाचे आदेश
सोबतच्या परिशिष्टात [Appendix] जोडले आहेत. पाटबंधारे विभागातील सर्व
क्षेत्रीय अधिका-यांना व या विभागाच्या अधिपत्याखालील इतर संस्थांना असे सुचित
करण्यात येते की, त्यांनी नाले व नद्या यांच्यासाठी कालव्यांवर कराव्या लागणा-या
बांधकामाची संकल्पचित्रे तयार करताना सोबत जोडलेल्या शासनाच्या आदेशाचे परि-
पालन करावे.

(डॉ. एल. थोरात,)
शासनाचे महासचिव सचिव.

सोबत : एक परिशिष्ट

प्रत

One copy of this ...
... of JPC, ...
on 13/7/92.

ACCOMPANIMENT TO GOVERNMENT OF MAHARASHTRA) IRRIGATION DEPARTMENT
CIRCULAR (MARATHI) NO. MIS-1086/262/(51-   -WRI, DATED THE
        27th JANUARY 1987.

. . . .

A P P E N D I

Subject: Maximum flood discharge for designs of waterways for cross-drainage works for canals.

1. Canal cross-drainage works, at present, are being designed for flood discharges, generally in accordance with the Technical Circular issued under No. MIP-2260/26307-IP(I), dated 24th June 1960.

2. After 1960, some studies have been carried out by Central Water Commission, New Delhi to determine the design discharges for small and medium catchments. At the first instance, under short term plan, method evolved for estimating the design flood peak for small drainage basins of areas from 10 to 200 sq. miles was prepared and presented in the report titled "Estimation of Design Flood Peak- A Method Based on Unit Hydrograph Principle" Report No. 4/73. In this report storm rainfall with a 50 year return period is taken as the design storm. The method given in the report is applicable for the entire country.

3. Considering vastness of the country with widely varying hydro-meteorological characteristics, further in depth studies were continued by C.W.C., New Delhi to obtain still better approximation for the flood estimates by sub-dividing the country into 26 Hydro-Meteorologically homogenous sub-zones of moderate size. This is shown in the map enclosed as Plate-1. Detailed studies for following four sub-zones, (out of six sub-zones in which Maharashtra State area is covered) have been completed by Hydrology Directorate (Small catchments) of C.W.C., New Delhi and reports are available for reference.

(1) Lower Godavari Sub-zone
(2) Krishna and Pennar Sub-zone   (3 f)
(3) Upper Narmada & Upper Tapi Sub-zone   (3 h)
(4) Lower Narmada & Lower Tapi Sub-zone   (3 c)
                                                   (3 b)

The flood peak could be calculated from the basic derivatives given in the report for constructing the Synthetic Unit Hydrograph and determining the storm of 50 years return period.

4. It is also proposed to continue with the further investigation and data collection after establishing adequate river and rain gauge stations in the State and to switch over gradually to more rational and realistic methods. However for the present in partial modifications to Technical Circular quoted in Para (1) above, following procedure may be adopted for arriving at the design and check flood for small and medium catchments.

(A) For catchments upto 2.5 sq.kms. (1 sq. mile) the design flood may be calculated by the formula $Q = \dfrac{4000A}{\sqrt{A+4}}$, (where 'A' is the catchment area in square miles). There is no separate check flood. The isopluvial maps for 50 year return storms show

higher intensity of rainfall than 3" per hour in some regions like Konkan area and for eastern parts of the State. Here for small catchments upto the 2.5 Square kilometres, the flood intensity may be calculated by the Storm of one hour duration and 50 years return period and if the flood is more than that given by the Inglis formula $\frac{4000\ A}{\sqrt{A+4}}$ higher flood value shall be adopted for the design flood.

(B) For catchments from 2.5 to 25 sq.kms. (i.e. 1 to 10 sq. miles), the design flood should be calculated by the formula $Q = \frac{4000\ A}{\sqrt{A+4}}$. For check flood the co-efficient in the above formula should be taken to vary as per present practice(Technical Circular, dated 24-6-1960) in the State.

(C)-(1) For catchments from 25 sq.kms. (10 sq.miles) to 500 sq.kms. (200 sq.miles) lying in sub-zones 3(b), 3(c), 3(f) and 3(h), the design flood shall be calculated as per the basic derivatives given in the respective reports published by the Hydrology Directorate of Central Water Commission for constructing the synthetic unit hydrograph and determining a storm of 50 years return period. The design flood shall also be calculated as per the Inglis formula by taking coefficient as 4000 and higher of the two values adopted.

(C)-(2) For catchments from 25 sq.kms. (10 sq.miles) to 500 sq.kms. (200 sq.miles) lying in sub-zones 5(a) and 3(e), the design flood shall be calculated for the present as per the method given in Central Water Commission Report No. 473, till such time the detailed reports of the Sub-zones are available from Hydrology Directorate of C.W.C. The design flood shall also be calculated by the Inglis formula by taking coefficient as 4000 and the higher of the two values adopted.

(C)-(3) Check flood by the C.W.C. methods described in (C)-(1) and C-(2) above, shall be taken as 1.3 times the design flood. The check floods shall also be obtained from a straight line relation as per 1960 Circular. The higher value of the two shall be adopted for check flood.

(D) The catchments with area more than 500 sq.kms. (200 sq. miles) shall be subjected to a detailed study.

PLATE:1

MAP OF INDIA SHOWING HYDROMETEOROLOGICAL SUBZONES
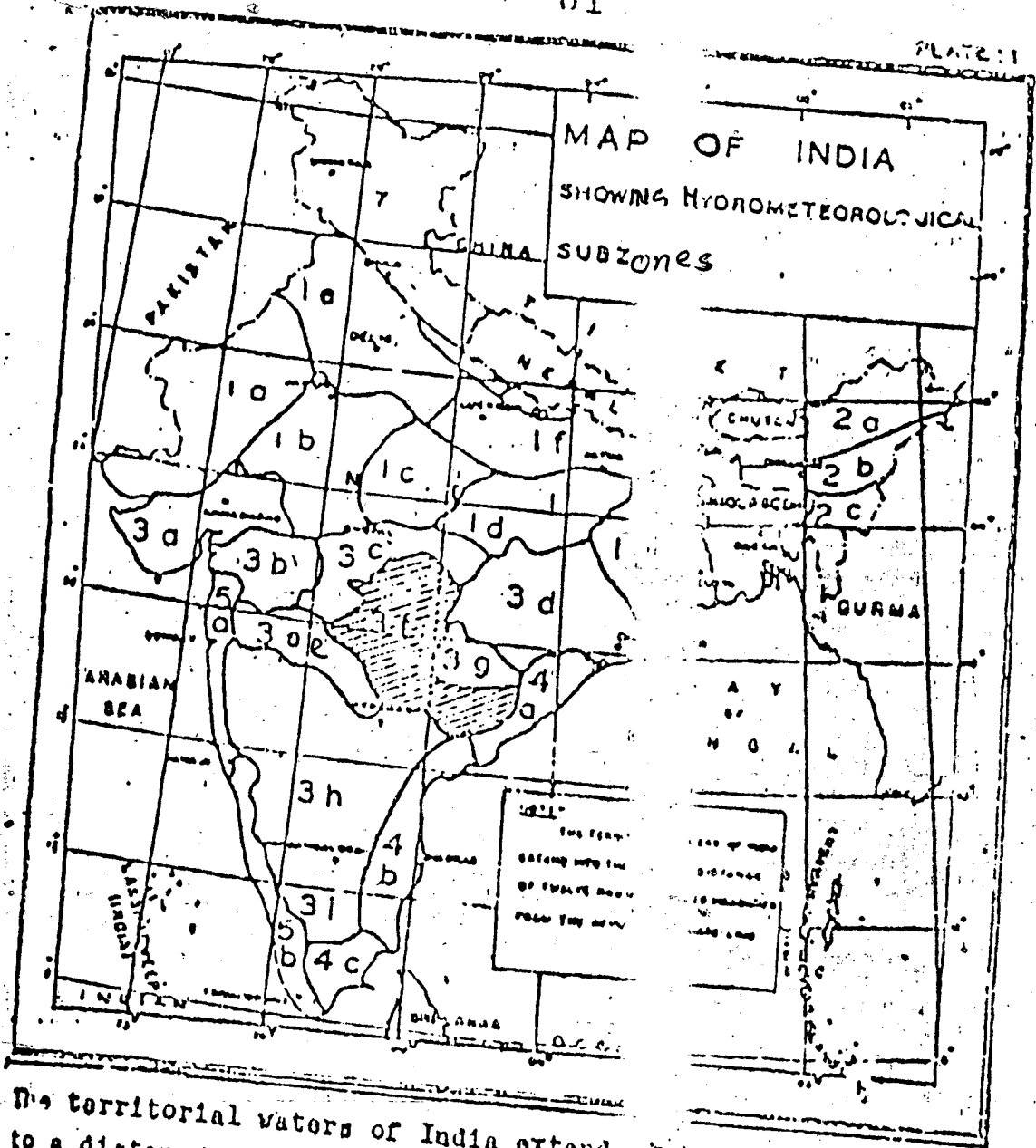
The territorial waters of India extend into the Sea to a distance of twelve nautical miles measured from the appropriate base line.

Based upon Survey of India map with the permission of the Surveyor General of India.

(o) Government of India Copyright – 1990