ARR 2015 Overview

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Topics

- Background
- Changes
- Document

BACKGROUND

Background

- Initial desire was evolution.
  - Enhance existing document.
  - Include new data.
  - Include guidance on use of computer models.

Background

- Final result is going to be revolution.
  - Computerised delivery of data.
  - New computer based techniques replacing old hand calculation approaches in many areas.
  - New guideline delivery approaches.

Background

Design flood estimation requires prediction of

- Characteristics of the flood hydrograph; and
- Exceedance probability of that value.

Short hand

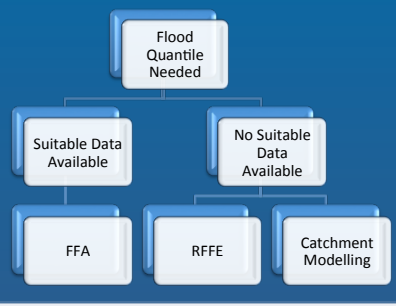
- Relationship between flood magnitude and probability

Background

Question
- How to obtain relationship

Answer
- From analysis of data at site of interest

Background



INCLUSION OF TECHNIQUES AND DATA IN ARR2015

ARR2015

Inclusion in ARR2015 required
- Approach or data being peer reviewed from both a theoretical and a practical perspective.
- Approach or data being derived from analysis of real events.

ARR2015

Recorded data is important

- Need more data – particularly in urban areas.
- Inclusion of guidance on management of data and how it is collected.

ARR2015

Availability of recorded data in urban areas is very poor.

Most catchments used were compromised.

Difficulties include:

- Stationarity
- Mixed urban – rural land uses.
- Gauging station
  - Rating curve
  - Measurements

ARR2015

- Recognition of computerised techniques.
- Recommendation for full hydrograph techniques
  - Avoids issues with partial area effects
  - Automatically considers volume effects
- Recommended that Rational method be used only on small developments

ARR2015

- Changes have occurred
  - Inclusion of WSUD Concepts.
  - Effective impervious area rather than apparent impervious area.
  - Continuous simulation and ensemble modelling included.
  - Alternative continuous rainfall sequences.

ARR2015

- Systems concepts in analysis of performance
- HGL calculations tweaked.
- Catchment response time calculations tweaked.
- Inclusion of PMF modelling in urban areas.

DOCUMENT

Document

- Document larger than ARR87.
- Computerised document
  - Epub, HTML and PDF(?) forms
  - Downloaded from website possible

Document

- 9 books, 40+ chapters.
- Books interlaced
  - Users need to read more sections of ARR.
  - Hyperlinking between sections will assist.

Document

Main books of interest for urban drainage are

- 2 – Rainfall Estimation
- 4 – Catchment Simulation
- 5 – Flood Hydrograph Estimation
- 6 – Flood Hydraulics
- 7 – Application of Catchment Modelling Systems
- 9 – Runoff in Urban Areas

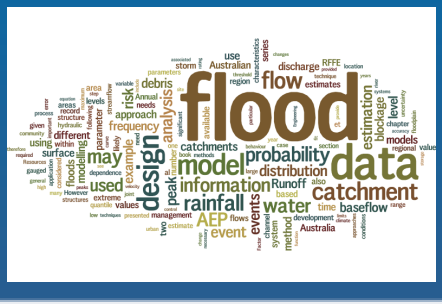
Book 9

1. Introduction
2. Aspects of Urban Hydrology
3. Urban Drainage Concepts
4. Modelling Approaches
5. Runoff Detention and Retention

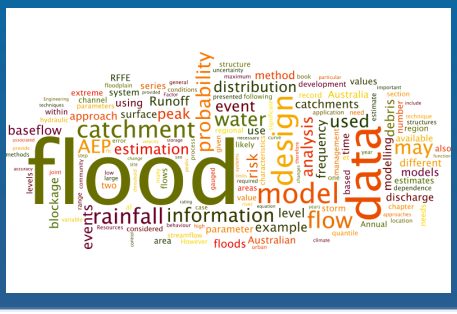
Book 9

6. Pipe Network Design Method
7. Urban Network Analysis
8. Safety Design Criteria

1987 Document



2015 Document



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