

# FENOMENA TRANSPORT SEDIMEN DISALURAN TERHADAP PERUBAHAN JARAK CHECK DAM SERIES

TESIS

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**TESIS**

*Diajukan Sebagai Salah Satu Syarat Penyelesaian Studi di Program Studi  
Magister Teknik Sipil, Jurusan Teknik Sipil, Fakultas Teknik Universitas  
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## ABSTRAK

Penelitian ini merupakan peniruan terhadap pola aliran melalui check dam series dan sedimentasi antar check dam. Check dam series yang dipakai adalah check dam pada Batang Kuranji dan check dam Kali Woro. Model dibuat dengan menggunakan pendekatan terhadap kondisi yang ada dengan tinggi dam skala 1:125 sedangkan jarak check dam 1:300 adapun jarak kondisi lapangan antara check dam skenario 1 (89,00 cm), skenario 2 (94,00 cm), skenario 3 (200 cm). Semua model dilakukan pada saluran terbuka segiempat 40 x 40 cm di laboratorium Mekanika Fluida dan Hidrolika, Fakultas Teknik Universitas Andalas, Padang. Material sedimen digunakan dari Batang Kuranji. Selanjutnya setiap percobaan dengan variasi debit aliran diamati dan diukur pola sebaran sedimen di sebelum dan sesudah bangunan check dam. Dari hasil pengujian yang dilakukan, didapatkan kondisi seimbang sedimen berkisar antara 10-19 menit setelah air keluar dari dainhole. Pemakaian jarak 94 cm efektif digunakan pada check dam 1 dan 2 dapat mengurangi gerusan dan check dam 3 mempertahankan dinding saluran. Volume sedimen bergerak lebih besar pada jarak check dam skenario 3 pada bangunan check dam 3 debit 2,25 l/s sedimen bergerak 68,2%. Variasi debit mempengaruhi kedalaman gerusan. Semakin besar debit dan semakin jauh jarak antar check dam semakin besar pergerakan sedimen.

**Kata kunci :** Check Dam Series, Sedimen, Debit Aliran



## ABSTRACT

*This research is an imitation of flow patterns through check dam series and sedimentation between check dams. The check dam series used are the Batang Kuranji check dam and the Kali Woro check dam. The model was created using an approach to existing conditions with a dam scale of 1:125 while the check dam distance is 1:300. The distance between field conditions between check dams in scenario 1 (89.00 cm), scenario 2 (94.00 cm), scenario 3. (200 cm). All models were carried out in a 40 x 40 cm rectangular open channel in the Fluid Mechanics and Hydraulics laboratory, Faculty of Engineering, Andalas University, Padang. Sediment material was used from Batang Kuranji. Next, for each experiment with variations in flow discharge, sediment distribution patterns were observed and measured before and after the check dam. From the results of the tests carried out, it was found that the sediment was in a balanced condition ranging from 10-19 minutes after the water came out of the drainhole. The effective use of a distance of 94 cm on check dams 1 and 2 can reduce scour and check dam 3 maintains the channel walls. The volume of moving sediment is greater at the check dam distance in scenario 3. In the check dam 3 building the discharge is 2.25 l/s the sediment moves 68.2%. Variations in discharge affect the depth of scour. The greater the discharge and the greater the distance between check dams, the greater the sediment movement.*

**Keywords:** Check Dam Series, Sediment, Flow Discharger

