We thank the reviewer for his/her positive assessment and appreciate the comments. The detailed responses to the individual comments are provided in the bold font below the each comment.

Page 3

Extreme

Corrected

ISS - requires brief explanation

It is explained in the referred paper, here is mentioned just for the completion of literature review.

Results rather than the sole fact of publication are important

Done

The present study ... (instead of "We" ...)

Done

Introduction and Review need to be improved, more towards main findings of the authors. What is the state of the art in calculating oblique submerged weirs? Why isn't an improved discharge coefficient (for vegetation and angle) not sufficient?

Revised

Page 4

and are summarized in standard text books.

Added in the text

Ideal flow condition is: formula in extra line (1)

Corrected formula moves to next line

Why index "1" for Fr ?

Index 1 is showing that the Froude number is calculated on the weir crest, which is section 1. Sections are added now in fig1 (a)

Where the discharge coefficient C is the product of Cdf and Cd (no "x" as sign)
Corrected

Page 5

Why brackets (S) ?

S is a symbol representing the submergence.

The layout of the formulae within the text makes this section hard to read

The formulas has been separated from text.

the entire concept of drag/discharge coefficients is fully empirical ...

Corrected

explain perfect - does it mean no 3D effects (as frictional losses are considered by the cd coefficients) ?

Prefect is related to free flow condition (not submerged flow).
Now this is mentioned in the text.

I would suggest to put all the formulae for cd or q into a single table with comments for what cases they hold

It is not possible to put in a table because the equations are mentioned systematically starting from the perpendicular weir to oblique and from free flow conditions to the fully submerged flow.

ok, "perfect" relates to the submergence, but state it above ...

Done

Page 6

include them in the review

Done

what about studies on porous structures/dikes, would they've been helpful for this study? (for example http://www.irtces.org/pdf-hekou/044.pdf)

The mentioned paper is more like porous media flow but in present study the blockage density is only 25%, so it is not the porous media flow and approach is completely different.

obstacles
Corrected

energy or force/momentum balance equations?

Momentum balance equation

not clear why bedforms are cited here

For the explanation of the expansion loss form drag model because the cited papers use This approach for the bedforms

does this fact not rely on flow separation and recirculating flow rather than the expansion of streamlines?

As the result of flow expansion the flow separation and in the recirculation zone , the energy is lost

Page 7

in the domain considered in this study.

Corrected

you account for friction by the cd coefficients ...

Here we want to determine the discharge coefficient (form drag) due to the weir so the friction loss is subtracted.

distribution above the ..

Corrected

put the alpha coefficients before the fractions

Corrected

coefficients

Corrected

will you later discuss this assumption (in particular: differences in the recirculation structure due to the inclination)? I'd guess that the oblique case has a bubble with lateral mass transport (similar to bedforms inclined to the main flow).

Page8

in our case (as stated before)

Corrected

not clear what you mean - does it mean no oscillating flow pattern in the lee?

The parallel component of velocity to the weir crest remains consatant.

has delta* been defined already? It apperas first time here.

Defined here now

Page 9

horizontal (micro)wakes of the "vegetation" or vertical recirculation in the lee of the dike?

This section for the dike with out vegetation, vegetation are discussed in next section.

Dimensionless

Added in the text

no s-genitives
Corrected

Page 10

We

Removed

def. of free flow conditions?

Defined

emerged stem-type of vegetation (mature trees without foliage in the lower sections)

Corrected

case

Corrected

so this is the separation bubble/mixing layer "wake" ?

Yes

Page 11

not clear - the wake interference between the stems?

Wakes interaction of stems and the wake region of the weir.

reduction of area?

Yes

Ok!

Ok

Page 12

submerged stem-type vegetation (rigid)...

Corrected

Height?

Corrected

I would state the experiments in the text and that corrections are necessary (not in the header)

Accepted and removed

Page 13

Analytical Model Testing?

Done

Page 14

which means zero velocity ...

Yes

becomes

Corrected
we
Removed
we
Removed

Page 15

In fact, did you consider the parallel dike case (reduced to a wall-roughness/vegetation drag) as a boundary condition for the model?

We considered up to the 60^0 of inclination. We only did analysis for the oblique weirs not for the parallel dikes/weirs, for the parallel dikes the approach is different because that is uniformly varying flow.

Page 18

The Experimental part may be shortened, if the experiments were the same as in the perpedicular case in your paper (ASCE, 2013) then only the differences may be listed here.

These experiments are different.

Page 19

Based on experimental data ...

Corrected

What exactly - Re and Fr numbers? sharp crest and separation? The empiricism itself should not be the reason - deviations lie within the previously stated conditions.

Corrected as that this formula has limited range of applicationsdue to the different type of weir.

Page 21

Differences between vegetation and pseudo-vegetation ... this is the old problem of model vegetation being just rigid rods which represent only stem-type of vegetation (trees or stiff reeds) ... consistency in the term "vegetation" is requires - best in the introduction (and a statement, that the approach only holds for the rigid, cylindrical case, not for flexible types etc.)

Ok, accepted

Page 22

Short explanation - hydraulic jump and dissipation etc.

Ok

this means higher upstream water level or higher upstream velocity/slope ?
Higher velocity and more head loss

Definition of free flow state (see above)

Defined

Is it a blockage (velocity rise and frictional losses as a fct. (vel^2) or a wake dissipation effect?

Blockage effect

plus the wake losses in the lee of vegetation

Added to the text.

Page 23

The hydraulic jumps appears first time here. It may also be stated in the introduction (a chapter on terms/contributions to total head loss?)

Agree and included

In the oblique case too? Is this similar to a (wave) diffraction effect?

Yes

Page 24

This means for high submergence, the effect of the weir is less pronounced which makes sense.

Ok

IMO the explanation contradicts the second finding above (Flow always turns ...)

We thing it is not contradictory, as the effective length increases, so the discharge also increases.

Valid approach

Ok, thanks

This also contradicts the previous points, which then is only valid for near-perpendicular conditions.

It is valid upto 60^0 within 11% error as mentioned at page 20 line 16

Blockage or wake turbulence effects?

Blockage effects and also wake effects.

Or to conditions with flow separation in the lee?

There is also a wake in the lee side in case of the submerged flow. The size of the wake varies with the submergence.

Page 25

"Wehre"

Corrected

Page 28 (fig 1)

Velocity height could be enlarged - to better identify the according arrow

Figure is corrected

Page 30

What is missing in the dicsussion is a word on the weir length/channel width - as this ratio may affect the parallel flow development in the oblique cases (in particular for higher submergences)
I'd guess that with 2,0 m channel width, you're in the ideal/negligible wall-effects regime

Ok

Page 33

Briefly state what delta* means (dimensionless weir height = ...)

Done