Public justification (visible to the public if the article is accepted and published): Firstly, apologies in the delay coming to this decision. Both reviewers have identified some minor (R1) and more significant (R2) issues with the manuscript. I would ask you to address especially the comments from reviewer 2 fully. I believe this can be carried out without need for further review (the paper has already had two sets of reviews) but will of course need to be checked by the editors so I encourage you to make the changes as fully as possible.

Re: We appreciate the Editor's assistance in finalizing the paper. We also sincerely value the thoughtful insights from both reviewers and acknowledge the issues that require revision. We have carefully addressed all comments and thoroughly revised the manuscript per the reviewers' suggestions.

Reviewer 2:

This is the review report for the manuscript, entitled: “Knickpoints and Fixpoints: The Evolution of Fluvial Morphology under the Combined Effect of Fault Uplift and Dam Obstruction on a Soft Bedrock River” by Chen et al. This study utilizes high-resolution elevation survey data combined with remote sensing images to obtain nearly 20 years of river longitudinal profiles with a resolution of submeter since 1999. The 1-D knickpoints evolution model based on the diffusion model, along with the digitization of sandbar within the river channel, contributes to the 3-D of river network configuration. Overall, the author successfully constrains the elevation changes of river channels and the main flow paths in three rivers along the Chelungpu Fault in central Taiwan. The author claims that the evolution of these three rivers can represent the influences of faults, dams, or a combination of both on river topography. This is highly meaningful research that distinguishes human activities from natural driving forces in shaping the natural landscape, providing insights into the field of anthropogenic geomorphology.

However, I share some concerns that need to be addressed before publication. Firstly, the quantification of contributing factors is crucial for establishing a comparative platform. The role of the fault: the vertical displacement caused by the 921 earthquake along the Chelungpu Fault led to a north-high and south-low displacement, creating discontinuities in river longitudinal profiles. Afterward, does the fault lose its role, and does it no longer contribute to tectonic uplift? Regarding the role of dams: how far can the tool effect of the dam persist, and does the nature of sediment on downstream change? The title may lead readers to expect a discussion of the similarities and differences between dams and knickpoints, but the content lacks corresponding discussion. Secondly, the manuscript extensively presents speculative inferences without citations. The author should avoid subjective inferences and excessive assumptions without literature support. The discussion section on the evolution processes of the three rivers is currently weak, primarily offering descriptive phenomena. Thirdly, restructuring sentences and simplifying images could enhance the readability of the paper.

Re: Thank you very much for your positive and detailed review of our manuscript. Most of the comments in the paragraph have been mentioned again in the following line-by-line comments. Most of the opinions have been responded to line by line below. Here, we will further address the impact of the earthquake and the basis of the inferences.

Firstly, according to paleoseismic studies, apart from the Chi-Chi earthquake, five paleo-earthquake events along the Chelungpu Fault over the past 2000 years can be roughly identified (1999, 1650-1520 AD, 1270-1160 AD, 1060-1030 AD, 570-400 AD,

and 240-50 AD) (Chen et al. 2004, 2005). This indicates that the likelihood of another large-scale earthquake causing surface uplift in the short term is low. The observed surface uplift was a one-time effect caused by the Chi-Chi earthquake in 1999. In the case of the Daan River, due to its soft rock geology, the uplifted terrain was eroded within just a few years, as explained in the text.

Furthermore, the tool effects of dam persist over time, but the degree of change varies depending on the strength of the geological formations. Significant erosion can form within a few years on soft rock, while on hard rock, this process could take several hundred years.

Our inferences are based on measured data, and in addition to using actual topographical changes as evidence, we also referenced the views of other researchers and mathematical models to validate our conclusions. Over the past 20 years, significant changes have been observed in three rivers within the study areas, which are strong evidence of the evolutions.

- Chen, H.C., Chang, and Y.H. Lee: Slip Rate and Recurrence Interval of the Chelungpu Fault During the Past 1900 Years: Quaternary International, 115-116, 167-176, 2004.

-Chen, W.S., Lee, K.J., Lee, L.S., Streig, A.R., Chang, H.C., Lin, C.W.: Significant sedimentation of coseismic fault-propagation growth-fold in the Chichi earthquake rupture, central Taiwan, accepted to Journal of Asian Earth Sciences, 2005.

Line-by-line comments:

1. L21 Are there significant differences in the impact of “natural” tectonic movements and “artificial” tectonic movements on river topography?
   Re: (We assume the reviewer is referring to artificial “structures.”)
   Our response to this question is affirmative. This paper highlights the differences between the two, as both lead to distinct topographical changes. These changes can be likened to a moving point versus a fixed point on a riverbed, resulting in entirely different morphological evolution outcomes, as illustrated in Fig. 1(a) and 1(b).
2. L21 please specify “river equilibrium”.
   Re: “River equilibrium” encompasses many aspects that represent a spatially and temporally stable state. Here, we are primarily referring to sediment transport, which affects riverbed morphology changes. We have slightly revised this sentence to improve clarity. L25 delete “significant”. We have replaced the word with “substantial”.
3. L25-L28 The formation of Knickpoints is repeated in these two sentences; a suggestion to rephrase is advisable.
   Re: The paragraph has been rephrased; please see lines25-29.

4. L30 delete “sudden”
   Re: We replace it with “abrupt”. It describes the sharpness and immediacy of the elevation change.(line32)
5. L30-31 The occurrence of knickpoints does not necessarily alter the slope of the river channel.
   Re: The sentence in our manuscript is “The abrupt elevation change in the riverbed divides the river profile into two reaches with differing slopes….” Regarding the definition of a knickpoint, please refer to Li et al. (2021): “The knickpoint is usually defined as a sudden change in the slope of a river profile, and this change in slope is often placed in a power-law function to discuss its relationship with the drainage area. (Flint, 1974; Snyder et al., 2003; Wobus et al., 2006; Kirby and Whipple, 2012)”
   - Li et al. (2021). Distribution and evolution of knickpoints along the Layue River, Eastern Himalayan Syntaxis. Journal of Hydrology, 603, 126915.
6. L32-37 please rephrase the text to better elucidate the theme of this paragraph.
   Re: The paragraph has been rephrased; please see lines34-39.
7. L41-44 Information provided is overly fundamental.
   Re: The sentences have been removed. Thank you for the suggestion.
8. L59-65 Suggest removing the introduction to the research area.
   Re: We have shortened the sentences according to the suggestion.
9. Re: L71-72 Lacks appropriate citation of references.
   The citations have been modified. (lines67-68)
10. L82 -83 Overly assertive.
    Re: The sentence has been revised accordingly. (lines78-80)
11. L87-119 While the author has introduced the lithological settings of the riverbed, it is important to note that the incision or migration of the riverbed is also influenced by factors such as sediment particle size, sediment concentration, sediment distribution, and the compressive strength of rocks. Moreover, the discussion should ideally focus on the tectonic uplift during interseismic periods and the runoff discharge. Therefore, it is recommended that the author supplement relevant data to address these aspects in the study.
    Re: We fully agree that migration of the riverbed is also influenced by those factors mentioned. We intend to present the most critical data. Fig. 2 and Fig. 13 reveal data on lithology and cumulative flow, respectively. More detailed information can be found in the *Open discussion*, and additional relevant data have been addressed in other research (e.g., Cook et al., 2013; Huang et al., 2013).
    Considering that this paper's focus is not comparing sediment transport rates or

knickpoint migration speeds, and that has very little value merely listing data without further explanation and analysis, we prefer to maintain the current level of data presentation.

12. L121-133 The author has not appropriately separated the materials from the methods. There is a lack of clear explanation regarding the purpose of analyzing the width and depth of the river.
    Re: We have modified the subtitle “materials” to “Data Collection and Analysis Methods” so the content in the subsection should be suitable now.
    The width (W) and depth (D) of the river can be used to quantify changes in river patterns. In order to analyze the variation of channel width, depth, and aspect ratio (W/D), we calculated the bank-full discharge width and depth, representing the maximum flow that can occur in a river before water starts overflowing and spreading out onto the floodplain. (lines124-132)

13. L135-137 Reasons for the Need for Mathematical Models?
    Re: The application of the mathematical model provides an abstract description of a concrete system using physical concepts and mathematical language. The results of the mathematical model can be validated against the actual topographical changes, demonstrating the evolution of the knickpoint.

14. L184-185 move to method
    Re: The sentences have been moved.
15. Please maintain consistency in the name of the Jiji (Chichi) dam.
    Re: The text consistently uses "Jiji dam." The label in Fig. 8 has been revised accordingly.

16. L324-331 Please provide information in the materials section regarding the source and processing of the flow data.
    Re: The WRA provided the daily flow data, and we calculated the cumulative flow to compare the relationship between knickpoint retreat and discharge. (we have added the explanation in lines326-336)
17. Fig.1 Lacks information.
    Re: We have added text on the sub-figure (c). Thanks for the comment.

18. The subfigure in Figure 5 is unclear and lacks sufficient information.
    Re: Figure 5 primarily focuses on the actual terrain changes. The subfigure is used to illustrate the trends in terrain variation through a mathematical model and to show its similarity to the actual terrain. Therefore, we present the

mathematical model as a subfigure. We have revised the caption to clarify that the subfigure represents the results of the numerical model calculations.

19. Fig. 12a If the numbers on the T-bar represent the ratio of W/D, some values appear to be quite peculiar, for instance, the W/D values in the upper reaches of the Dajia River. I think a simple table can replace this figure.
Re: Fig.12a illustrates the dramatic variation in W/D (width-to-depth ratio), and the results clearly show the deepening of the channel. We believe that when readers see the figure, they will distinctly sense the intensity of the channel deepening that we are aiming to highlight.

Review 1:

I have read through the revised manuscript and found that many of my concerns are well-addressed. I leave some additional comments regarding the organization of the manuscript and the influences of discharge and lithology on the evolution of the channel morphology.

I understand that the current study is built upon Cook et al. (2014) and agree that revisiting the results of Cook et al. (2014) helps understand the evolution of the channel morphology. Yet, I think the current descriptions regarding Daan River includes both results and interpretation and suggest reorganizing the corresponding sections. Or, maybe you can introduce Cook et al. (2014) in Study area to avoid the mixing of results and discussion.

Regarding your reply to the comment from reviewer 1 (the fourth one), I have found the argument on the effects of lithology convincing and interesting. I believe you can further strengthen the current manuscript by adding the same argument about the lithology.

Line by line comments:

1. Line 199: I suggest citing Table 1 to show the consistency between the modeled and observed knickpoint retreat speed.
   Re: We did not find a suitable place to cite Table 1 around line 199, so we referenced it in line 205.
2. Line 335: The sentence lacks a verb and looks incomplete.
   Re: The sentence was revised. (line326)
3. Line 339: Suggest changing continuously to continuous and increasing to increase.
   Re: The sentence was revised according to the comment. (line330)
4. Line 341-342: I could not understand what you meant by these two sentences. Since these sentences are the reply to the comment from reviewer1, I suppose you meant discharge variability does not affect the observed evolution of channel morphology. However, because discharge clearly dictates the knickpoint retreat speed when looking at the individual rivers, I wonder why the rates of knickpoint retreat are so different between the Dajia and Daan rivers. I do not think you need to find a clear answer to this question, but it is worth adding some sentences or a paragraph to the discussion.
   Re: The unclear sentences have been modified, and the paragraph now points out the difference in knickpoint retreat rates between the two rivers as the reviewer's comment. It would be hard to verify which reason is crucial, so we just provide some possible reasons. (lines332-336)
5. Fig. 5: Maybe you should write that you used DSMs generated from aerial

photos in the body text, not just in the figure caption.

Re: We added the source of the DSMs in the section 2.2. (Lines 124-127). Thank you for the suggestion.

6. Fig.12: What do background thin-colored lines represent?

   Re: Fig. 12(a) is a 3D diagram, where the lines serve as guides to help interpret the position of the "T" shape in the 3D space. The lines in Fig. 12(b) represent changes in the river facies, with the transition from lighter to darker lines depicting the variations in depth.

7. Fig. 13: Is the Y-axis label “Accumulated flow”? Also, since there is no knickpoint in Zhuoshui river, I wonder why Zhuoshui river is included.

   Re: Thank you for the correction for the Y-axis. Indeed, there is no knickpoint in the Zhuoshui River; however, since this paper discusses the conditions of three rivers simultaneously, we believe that some readers might be interested in the discharge data of the Zhuoshui River, and we can easily provide that information to satisfy their curiosity.