Supplementary file

Article


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Table S1. The decadal dynamics of newly emerged and disappeared glacial lakes in Nepal.

<table>
<thead>
<tr>
<th>Period</th>
<th>Emerged lakes</th>
<th>Disappeared lakes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Area (km²)</td>
</tr>
<tr>
<td>1977–1987</td>
<td>526</td>
<td>10.06</td>
</tr>
<tr>
<td>1997–2007</td>
<td>345</td>
<td>4.81</td>
</tr>
<tr>
<td>2007–2017</td>
<td>293</td>
<td>4.66</td>
</tr>
<tr>
<td>Overall change</td>
<td>511</td>
<td>10.1</td>
</tr>
</tbody>
</table>

Table S2. Total number of newly emerged glacial lakes in different basins by type in between 1987 and 2017. The values in the parentheses indicate the total area (km²) of the respective glacial lakes.

<table>
<thead>
<tr>
<th>Lake types</th>
<th>Koshi</th>
<th>Gandaki</th>
<th>Karnali</th>
<th>Mahakali</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supraglacial</td>
<td>75(1.18)</td>
<td>56(0.61)</td>
<td>12(0.1)</td>
<td>9(0.07)</td>
<td>151(1.97)</td>
</tr>
<tr>
<td>Pro-glacial</td>
<td>66(2.11)</td>
<td>46(1.37)</td>
<td>67(2.17)</td>
<td>-</td>
<td>179(5.65)</td>
</tr>
<tr>
<td>Unconnected</td>
<td>52(0.79)</td>
<td>17(0.42)</td>
<td>54(0.67)</td>
<td>1(0.01)</td>
<td>124(1.89)</td>
</tr>
<tr>
<td>Non-glacier-fed</td>
<td>33(0.39)</td>
<td>6(0.05)</td>
<td>17(0.15)</td>
<td>-</td>
<td>57(0.6)</td>
</tr>
<tr>
<td>Grand Total</td>
<td>225(4.47)</td>
<td>125(2.45)</td>
<td>150(3.10)</td>
<td>10(0.08)</td>
<td>511(10.1)</td>
</tr>
</tbody>
</table>
Table S3. Total number of disappeared glacial lakes in different basins by type between 1987 and 2017. The values in the parentheses indicate the total area (km$^2$) of respective glacial lakes.

<table>
<thead>
<tr>
<th>Lake types</th>
<th>Koshi</th>
<th>Gandaki</th>
<th>Karnali</th>
<th>Mahakali</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supraglacial</td>
<td>9 (0.14)</td>
<td>-</td>
<td>17 (0.2)</td>
<td>2 (0.027)</td>
<td>28 (0.37)</td>
</tr>
<tr>
<td>Pro-glacial</td>
<td>-</td>
<td>-</td>
<td>4 (0.08)</td>
<td></td>
<td>4 (0.076)</td>
</tr>
<tr>
<td>Unconnected</td>
<td>7 (0.05)</td>
<td>3 (0.027)</td>
<td>18 (0.18)</td>
<td></td>
<td>28 (0.26)</td>
</tr>
<tr>
<td>Non-glacier-fed</td>
<td>12 (0.08)</td>
<td>2 (0.014)</td>
<td>28 (0.31)</td>
<td></td>
<td>42 (0.4)</td>
</tr>
<tr>
<td>Grand Total</td>
<td>28 (0.28)</td>
<td>5 (0.041)</td>
<td>67 (0.77)</td>
<td>2 (0.027)</td>
<td>102 (1.1)</td>
</tr>
</tbody>
</table>

Figure S1. Evolution map of Kawache glacial lake at the lowest elevation (~2456 m) in the Kaski district of Nepal obtained from the Landsat TM imagery from 2003, 2006, 2007 and OLI imagery from 2013 and 2017.