# **Supplementary Appendix A1**

Annual rate of change (%/year) of the different land cover categories and periods for each one of the considered river basins. ART = Artificial; AGR = Agricultural; FNV = Forest and Natural Vegetation; W = Wetlands; WB = Water Bodies

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| CLC 1990 vs CLC 2000 |
| Basin | **Without change****(%/year)** | **ART growth** | **AGR growth** | **FNV growth** | **W growth** | **WB growth** |
| Alberche | 8.9442 | 0.0349 | 0.0424 | 0.0662 | 0.0000 | 0.0032 |
| Alto Duero | 8.9319 | 0.0055 | 0.1075 | 0.0452 | 0.0000 | 0.0008 |
| Cega, Eresma and Adaja | 8.9799 | 0.0214 | 0.0473 | 0.0370 | 0.0000 | 0.0052 |
| Guadarrama | 8.5633 | 0.3533 | 0.0444 | 0.1288 | 0.0000 | 0.0012 |
| Henares | 8.8927 | 0.0931 | 0.0438 | 0.0579 | 0.0000 | 0.0034 |
| Jarama | 8.5150 | 0.3851 | 0.0445 | 0.1366 | 0.0001 | 0.0096 |
| Riaza and Duratón | 8.9445 | 0.0207 | 0.0616 | 0.0629 | 0.0000 | 0.0012 |
| Tajuña | 8.9098 | 0.0210 | 0.0535 | 0.0996 | 0.0000 | 0.0071 |
| Tiétar | 8.8225 | 0.0067 | 0.1898 | 0.0680 | 0.0000 | 0.0039 |
| Tormes | 8.9113 | 0.0254 | 0.1145 | 0.0376 | 0.0000 | 0.0021 |
| CLC 2000 vs CLC2006 |
| Alberche | 13.7152 | 0.0935 | 0.2347 | 0.2320 | 0.0000 | 0.0102 |
| Alto Duero | 13.6981 | 0.0141 | 0.2843 | 0.2864 | 0.0000 | 0.0028 |
| Cega, Eresma and Adaja | 13.7764 | 0.0595 | 0.2149 | 0.2330 | 0.0000 | 0.0019 |
| Guadarrama | 13.3589 | 0.5292 | 0.1824 | 0.1912 | 0.0000 | 0.0240 |
| Henares | 13.6308 | 0.1082 | 0.2704 | 0.2679 | 0.0000 | 0.0083 |
| Jarama | 13.2899 | 0.4905 | 0.2482 | 0.2273 | 0.0003 | 0.0295 |
| Riaza and Duratón | 13.6179 | 0.0223 | 0.3176 | 0.3242 | 0.0000 | 0.0037 |
| Tajuña | 13.5013 | 0.0877 | 0.3735 | 0.3180 | 0.0000 | 0.0053 |
| Tiétar | 13.6893 | 0.0245 | 0.2898 | 0.2664 | 0.0000 | 0.0157 |
| Tormes | 13.6858 | 0.0404 | 0.2762 | 0.2696 | 0.0000 | 0.0137 |
| CLC 2006 vs CLC 2012 |
| Alberche | 14.2613 | 0.0081 | 0.0123 | 0.0039 | 0.0000 | 0.0000 |
| Alto Duero | 14.2644 | 0.0155 | 0.0034 | 0.0015 | 0.0000 | 0.0009 |
| Cega, Eresma and Adaja | 14.2511 | 0.0280 | 0.0052 | 0.0014 | 0.0000 | 0.0000 |
| Guadarrama | 14.0570 | 0.1485 | 0.0754 | 0.0047 | 0.0000 | 0.0000 |
| Henares | 14.2091 | 0.0628 | 0.0076 | 0.0062 | 0.0000 | 0.0000 |
| Jarama | 14.0318 | 0.2037 | 0.0470 | 0.0032 | 0.0000 | 0.0000 |
| Riaza and Duratón | 14.2724 | 0.0064 | 0.0041 | 0.0021 | 0.0000 | 0.0008 |
| Tajuña | 14.2307 | 0.0206 | 0.0306 | 0.0038 | 0.0000 | 0.0000 |
| Tiétar | 14.2375 | 0.0249 | 0.0148 | 0.0083 | 0.0000 | 0.0002 |
| Tormes | 14.2596 | 0.0125 | 0.0107 | 0.0022 | 0.0000 | 0.0007 |

# **Supplementary Appendix A2.**

Land use transition matrix for the two selected future scenarios. ART = Artificial; AGR = Agricultural; FNV = Forest and Natural Vegetation; W = Wetlands; WB = Water Bodies. Difference between present and future percentage, positive values indicates an increase in the future surface respect to the present, negative values indicates a decrease in the future surface respect to the present.

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| --- | --- | --- |
|  |  | 2050 RCP 45 |
|  |  | **ART** | **AGR** | **FNV** | **W** | **WB** | **Total area (Has)** |
| 2012 | ART | 176,176 | 0 | 0 | 0 | 0 | 176,176 (3.52 %) |
| AGR | 12,739 | 1,592,010 | 616,435 | 0 | 0 | 2,221,184 (44.39 %) |
| FNV | 0 | 0 | 2,578,304 | 0 | 0 | 2,578,304 (51.53 %) |
| W | 0 | 0 | 0 | 24 | 0 | 24 (0.00 %) |
| WB | 0 | 0 | 0 | 0 | 28,005 | 28,005 (0.56 %) |
| Total area | 188,915(3.78 %) | 1,592,010(31.82 %) | 3,194,739(63.84 %) | 24(0.00 %) | 28,005(0.56 %) | 5,003,693  |
|  |  |  |  |  |  |  |  |
|  |  | **2050 RCP 85** |
| 2012 | ART | 176,176 | 0 | 0 | 0 | 0 | 176,176 (3.52 %) |
| AGR | 223,605 | 1,997,579 | 0 | 0 | 0 | 2,221,184 (44.39 %) |
| FNV | 447,210 | 578,692 | 1,552,402 | 0 | 0 | 2,578,304 (51.53 %) |
| W | 0 | 0 | 0 | 24 | 0 | 24 (0.00 %) |
| WB | 0 | 0 | 0 | 0 | 28,005 | 28,005 (0.56 %) |
| Total area | 846,991(16.93 %) | 2,576,271(51.49 %) | 1552,402(31.03 %) | 24(0.00 %) | 28,005(0.56 %) | 5,003,693 |
|  |  |  |  |  |  |  |  |