Supporting Information

Enhanced visible-light-induced photocatalytic performance of novel ternary semiconductor coupling system based on hybrid Zn-In mixed metal oxide/g-C$_3$N$_4$ composites

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Fig. S1 FT-IR spectra of pure g-C$_3$N$_4$ (a), 5-MMO/C$_3$N$_4$ (b), 3-MMO/C$_3$N$_4$ (c) 1-MMO/C$_3$N$_4$ (d) and ZnIn-MMO (e). In the case of ZnIn-MMO/g-C$_3$N$_4$ composites, there are the strong absorption peaks for the typical C=N and C-N stretching modes of the C$_3$N$_4$ heterocycles at 1238, 1323, 1410, 1561, and 1658 cm$^{-1}$ and the characteristic breathing mode of the s-triazine units at 806 cm$^{-1}$. 

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**Fig. S2** Absorption changes of RhB solution during the photo-degradation process over the 3-MMO/C₃N₄ sample under visible light irradiation.

**Fig. S3.** Typical TEM image of 5-MMO/C₃N₄
**Fig. S4.** Pseudo-first-order kinetic for the photo-degradation of RhB over different samples under visible light irradiation.

**Fig. S5.** UV-vis diffuse absorption spectra of 3-MMO/C$_3$N$_4$ before use and after eight cycles.
Fig. S6 Room temperature PL emission spectra of g-C$_3$N$_4$ (a) 3-MMO/C$_3$N$_4$ (b) and ZnIn-MMO (c). Inset shows the enlarged PL emission spectra of 3-MMO/C$_3$N$_4$ (b) and ZnIn-MMO (c).