The advent of heterogeneous catalysis has facilitated the solar assisted toxic pollutant removal and synthesis of fine chemicals. Mixed anion compounds are known to be effective photocatalyst for visible light-induced water splitting, but the available materials have been almost limited to oxynitrides and oxysulfides. In this thesis we have synthesised, single layer Sillen–Aurivillius perovskite tantalum based oxyhalide Bi_4TaO_8X (X= Cl, Br, I) and metal loaded Bi_4TaO_8Br ($M@Bi_4TaO_8Br$). The materials were prepared using conventional solid-state route and photodeposition of metals onto Bi_4TaO_8Br. The prepared catalysts were characterised by PXRD, FE-SEM and DRS, which inferred they were single phase, micrometre sized particles with band gap in the visible region. The prepared photocatalyst Bi_4TaO_8Br was used to convert RhB to Rh110 under visible light and sunlight irradiation. We observed ~40% yield at pH=7, and the percentage yield being pH dependent. The photocatalysts exhibited excellent stability under visible light irradiation as evident from the cyclic stability tests of 50 cycles in the case of RhB to Rh110. We also examined the photocatalytic activity of the prepared $M@Bi_4TaO_8Br$ by degradation of RhB under visible light illumination. We observed the excellent activity of the $Pd@Bi_4TaO_8Br$ with a rate constant of 0.35372 min^{-1} surpassing commercial state-of-the-art P25 TiO_2 (0.10359 min^{-1}) by 3.4 times. Such high activity of Pd loaded catalyst is believed to be due to the presence of various active sites on its surface, owing to efficient electron transfer from CB of catalyst to the Fermi level of Pd which helps in effective separation of electron-hole pairs. $Pd@Bi_4TaO_8Br$ is superior to current commercial catalysts, in terms of catalytic efficiency and recycling stability which indicated the possibility of realising industrial scale use of toxic pollutant removal under solar irradiation. The valence band maximum of Bi_4TaO_8Br is unusually high, owing to highly dispersive O-2p orbitals (and not Br-4p orbitals), affording a narrow band gap and enhanced stability against photocorrosion. This study suggests that Sillen–Aurivillius perovskite oxyhalides is a promising system for versatile band level tuning for establishing efficient water oxidation under visible light.