The aim of this study was to examine the quality of the teaching and learning environment (pedagogical ecology) in community-based preschools sampled in Kenya Coastal region, Uganda and Zanzibar, and how it influences the cognitive development of children. The quality of pedagogical ecology of 47 (25 MRC and 22 non-MRC) preschools (14 urban, 20 peri-urban and 13 rural) was assessed using Early Childhood Environment Rating Scale (ECERS). At least one teacher of the participating children class in each year of follow-up was observed on their interaction, communication and participation with the children using teacher-child interaction rating scale (T-CIRS) adapted from Arnett (1989) care giver interaction scale (CIS). The preschool teacher’s pedagogical beliefs were assessed through a teachers pedagogical beliefs rating scale (TPBS). A total of 563 children (291 from MRC and 272 from nonMRC) were tested on their cognitive attainment at three (pre-test, post test 1 and post test 2) time points during preschool (mean age points 4.2, 5.3 and 6.4). Using descriptive and correlation statistics, the status and quality of preschools pedagogical ecology, teacher-child interaction, and teacher’s pedagogical beliefs were analysed. Considering the hierarchical and longitudinal nature of the cognitive data whereby time points are nested within children and nested within preschools multilevel regression analysis was conducted to find out the effects of the pedagogical ecology on the cognitive development of the preschool children. This study found that, 1) The quality of the teaching and learning environment in East Africa as indicated by the ECERS mean score of the 47 preschools observed is generally low (x=3.71, sd=1.29). Of the 47 preschools assessed, 15(31.9%) of them had less than ECERS mean score of 3 (the risk cut-off score) with only 9 (19.1%) scoring higher than 5 (good quality). The range of scores as indicated by ECERS is 1.58-6.09; with a wide variation of the quality of pedagogical ecology across types of preschools and preschool programmes; 2) rural preschool have better quality of pedagogical ecology compared to urban and peri-urban preschools; 3) the quality of teacher-child interaction is modest, however there are many preschool where negative forms of interaction is in practice. The positive teach-child interaction is positively and modestly correlated with the quality of teaching an learning environment (pedagogical ecology) while the negative styles of teacher-child interaction are negatively correlated with the quality of pedagogical ecology, 4) there is a no significant relationship between teachers pedagogical beliefs and the teacher-child-child centred instructional practices and 5) the quality of pedagogical ecology is a significant predictor of preschool children cognitive development though not invariantly across time. The study recommends among other things government and community increment of financial support, increased monitoring and evaluation of preschool teaching and learning environment and comprehensively robust research on the role of preschool quality in the development of children in East Africa undertaken.