

## CHAPTER 7 RECOMMENDATION

1. Since the study of bed agglomeration behaviors in this work was carried out with only four different biomass fuels at some specific operating conditions of FBC, more intensive works with various types of biomass and bed conditions are needed to investigate the further inorganic and bed agglomeration behaviors and to evidently verify the mechanism of bed agglomeration. In addition, the more experimental data being used, the more improvement in accuracy of the proposed models derived from the regression technique.
2. The initial steps of bed agglomeration process illustrated in Figure 5.23 were determined by two competitive processes: (1) condensation/deposition and (2) collision. The present experimental results revealed that these processes are dependent significantly on the chemistry of biomass. Presently, the degree of contributions in either relative or absolute of these processes are not investigated. The degree of contributions provides the further important information of the determining process of an individual biomass during bed agglomeration and the concept to develop the models with the enhanced accuracy of prediction. Additionally, the intensive study of the inorganic released behaviors which provide the important information on the ash-bed particle interaction is necessarily.
3. The further mathematical models, which predict the time dependent size distribution of any bed particle as a function of the controlled operating conditions and the fuel properties, is interested to develop in order to verify the pressure loss profile during bed defluidization. It is a theoretical model which may further predict the defluidization time.
4. The experimental verification in the plant/commercial scale fluidized bed boiler including the model verification can be the further works.
5. The future study in the mechanisms on the inorganic mitigation of bed agglomeration in FBC and the selection of appropriate additives for the observed biomass is recommended.