OPTIMIZING TEAM SELECTION AND BATTING ORDER FOR T20 CRICKET TEAM, SRI LANKA

P.H.N.J. Chandrasena[1] and W.C.P. Egodawatta[2]

[1]*Department of Physical Science, Faculty of Applied Science, Rajarata University of Sri Lanka, Mihintale, Sri Lanka;* [2]*Departemnt of Plant Sciences, Faculty of Agriculture, Rajarata University of Sri Lanka, Anuradhapura, Sri Lanka*
Corresponding Author: janith.ms@gmail.com

T20 cricket, unlike many other sports, is greatly unpredictable due to a large set of variables of playing conditions, players, opposition and even spectators; thus predicting the outcome is reasonably difficult. Predictions at prior preparations may give a competitive advantage without distorting the attraction of the game. Aims of this study were to establish a consistent simple mathematical modelling approach to aid in predicting the best team and optimum batting order for T20 cricket team of Sri Lanka. Two approaches were used; first was to find the best team and second to find the optimum batting order. Integer linear programming method used to find the best team. Random variable using probabilities of runs scored i.e. 1s, 2s, 3s, 4s, 6s runs by a player was simulated for 100 T20 matches. Then simulated runs were used to rank batting order. The position of a player was not solely determined using simulated runs, and it was linked to individual strike rate and dismissal probability, which were calculated using individual player statistics. Mainly, three batting teams were obtained using integer linear programming i.e. maximum score team, minimum score team and the balanced team. The balanced team was the ideal as it includes a set of bowlers, which is essential in defending. Out of the playing 11, batting positions were ranked from 1 to 11 by integrating simulation and real data. At the moment the applicability of this method is restricted, however, application of this method for selecting domestic players for the national team was identified. In batting ranks, players' statistics needed to be updated regularly to obtain more precise ranking as old data may rank currently low performing players in top order. All procedures were performed on MS EXCEL, thus, applications were simple, and easy to perform. Same methods would be applicable for bowlers as well.

Keywords: Balanced team, Battings ranks, Integer linear programming, Random variable