

## Revision of the FIFA / Coca-Cola World Ranking

### Overview

The new model for calculating the FIFA/Coca-Cola World Ranking (FWR) has been developed during two years in which a large number of different algorithms have been tested and extensively discussed.

Throughout this review and consultation process, the main aim has been to identify an algorithm that is not only intuitive, easy to understand and improves overall accuracy of the formula, but also addresses feedback received about the previous model and provides fair and equal opportunities for all teams across all confederations to ascend the FIFA/Coca-Cola World Rankings.

### About the new formula

The Elo method of calculation adds/subtracts points (as opposed to averaging points) for individual matches to/from a team's existing point total. The points which are added or subtracted are partially determined by the relative strength of the two opponents, including the logical expectation that teams higher in the ranking should fare better against teams lower in the ranking.

Elo ratings have been used in other sports for decades. A modified version of the Elo rating is currently in use for the FIFA Women's World Ranking.

Termed by FIFA as "SUM", the new algorithm developed specifically for the new FIFA/Coca Cola World Ranking was fine-tuned to reflect a number of FIFA's considerations, including the following:

- Adjusting the game weightings to give:
  - o less importance to friendly matches and more importance to final round competitions, such as the FIFA World Cup Finals
  - o more importance to knock-out stage matches than group stage matches in final competitions
- Excluding losses in knock-out rounds of final competitions from the calculation

The formula for the SUM algorithm is as follows:

$$P = P_{\text{before}} + I * (W - W_e)$$

**P<sub>before</sub>**: Points before the match

#### **I: importance of match**

- I= 0.5 Friendly matches played outside of International Match Calendar windows
- I= 1.0 Friendly matches played during International Match Calendar windows
- I= 1.5 Group phase matches of Nations League competitions
- I= 2.5 Play-off and final matches of Nations League competitions
- I= 2.5 Qualification matches for Confederations final competitions and for FIFA World Cup final competitions
- I= 3.5 Confederation final competition matches up until the QF stage
- I= 4.0 Confederation final competition matches from the QF stage onwards; all FIFA Confederations Cup matches
- I= 5.0 FIFA World Cup final competition matches up until QF stage
- I= 6.0 FIFA World Cup final competition matches from QF stage onwards

**W:** result of the match

- 1 = win; 0.5 = draw; 0 = defeat

**We:** expected result of the match  $We = 1 / (10(-dr/600) + 1)$

With  $dr$ =difference in ratings of the two playing teams, i.e.  $dr = [P_{\text{before of Team A}} - P_{\text{before of Team B}}]$

### Additional conditions

A few additional conditions included within the new Elo formula to address specific issues in international football include:

- **Penalty shoot-out (PSO):** Matches decided in a PSO are treated as a draw for the losing team and as "half a win" for the winning team:  $W$  for the winning team is 0.75 instead of 1.0 for a win after regular or extended time.

If PSO, then  $W$  for losing team= 0.5  
 $W$  for winning team= 0.75

Note: In some instances, games end with a winner after regular or extended time, but still include a PSO to determine the team that eventually will get to the next round. These games are treated as normal wins and defeats.

- **Knock-out rounds** of final competitions: Teams that earn negative points in the knock-out round of a final competition (e.g. as a result of losing, or even winning after PSO against a weaker team) do not lose any points:

If  $(W - We) < 0$  then  $P = P_{\text{before}}$

This condition was introduced in order to protect the point totals of teams that have progressed to the knock-out round.

### Benefits of the new formula

1. One of the main advantages of SUM is that it allows for a smooth transition from the current ranking formula to the new one without displacement of teams in the existing ranking table. The current FIFA / Coca-Cola World Ranking will be replaced seamlessly by the new SUM formula without gain or loss of member association rank positions.
2. Annual average point calculation – which is used in the current world ranking formula – will no longer be factored. Consequently the issues which arose in conjunction with this calculation method will be mitigated, or disappear entirely, including the devaluation of points through time, daily point fluctuations, and teams' avoidance of playing friendly matches to influence ranking position.
3. The Confederation weighting variables in the current formula, which make rising in the standings more challenging for teams from Confederations other than Europe or South America, will be removed. Teams will now have an equal chance to improve in the standings irrespective of their regional affiliation.

4. New categories of matches and match weightings will be introduced to effectively distinguish from the least to the most important types of matches. To begin, friendly matches will be weighted relatively lower to competitive matches. Friendlies will now also be distinguished between those that are played during International Match Calendar windows (value = 1) versus those played outside the recognised dates (value = 0.5).

Competitive matches in championship tournaments will also be distinguished between group stage matches and late-stage knock-out matches in an attempt to reward the most successful teams in the most difficult competitions. Furthermore, to mitigate the negative consequences of losing matches in championship tournaments, losses in the knock-out rounds of final competitions will not result in point deductions for the losing team.

5. The ranking of host nations who do not play competitive qualification matches in the period before championship competitions will not be as severely or negatively impacted with the new formula as with the current. Thanks to the sum-of-points calculation method, successful results in friendly matches would result in point gains more substantive than the existing formula currently allows.
6. The Elo system is well recognised in sports rating systems, and its principles well established. The premise of the SUM formula is intuitive and easy to explain. Teams gain and lose points based on their performance. The number of points gained or lost is a function of the relative strength of the opponents. Thus a weak team beating a strong team gains more points than a strong team beating a weak team. It is a fair and logical concept.

### **Other considerations & clarifications**

The review process carefully considered the unique characteristics of the six Confederations, specifically the disparate number of member associations, the balance of friendly matches to competitive matches played each year, distinct formats of qualification, the number and the nature of championship competitions per four-year World Cup cycle, the relative strength of teams in the Confederations, etc. The new formula would need to treat the matches of each Confederation indiscriminately. We believe the new formula achieves this outcome.