

The ConIFA Ranking System

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July 21, 2014

1 Background

In late 2014, after the first edition of the ConIFA World Football Cup, our members and the fact that invitations to tournaments are based also on strength demanded the set-up of a proper World Ranking for national teams outside FIFA and in particular the members of ConIFA. By launching the official ConIFA World Ranking we hope to give football outside FIFA another well-deserved boost. All data for the ranking are delivered by ConIFAs partner "RoonBa" and the current ranking is based on more than **39,000 games of FIFA members, ex-FIFA members and national teams outside FIFA**. This especially makes it possible for the first time in history to compare FIFA member nations to those outside FIFA.

2 key criteria

1. **Result of the match**
2. **Home, away or neutral ground**
3. **Goal difference and goals scored**
4. **Difference of the team's estimated strengths**
5. **Status of the team (FIFA, FIFA continental organization affiliate or outside FIFA)**

3 General Considerations

In the ConIFA World Ranking teams are ranked according to a value that is a measure of their actual strength. The total strength is hereby reflected in the ranking value (or simple rating) of the team. This rating gives all information about the strength of a specific team. If a team with a higher rating meets a team with a lower rating on neutral ground it is more likely that the better rated team wins.

Of course a certain amount of mathematics is required to fully understand the ranking system described here. Nevertheless it is still easily understandable for those who are really interested and enables all our members and interested followers understand team's movements. Our database, which was setup by RoonBa, consist of very complete records of all matches inside and outside FIFA since the first international football match (31.07.2014 Scotland 0 - 0 England).

The ConIFA World Ranking is based on several requirements:

- The ranking is non-discriminatory against continental heritage. All teams start with the same initial value regardless of their continental zone.
- The ranking is non-discriminatory against the size of tournaments. The ranking only separates between friendly matches and competitive matches, no matter which competition it is.
- All results calculated by the 90'min results. A match decided in overtime or penalties is treated as a draw..
- The rankings will be updated at the end of each months and will be published on www.conifa.org

4 Basics of the Ranking Method

Each team starts with an initial value. This initial value is dependent on the "status" of a team. The different statuses and initial values can be found in the following table.

Status	Initial Rating	Description
FIFA	1500	All teams that are today a full member of FIFA
Continental outside FIFA	1350 1200	All teams that are affiliated to any of FIFAs continental zones All other teams

The ConIFA World Rating is calculated new after every match played. The basic formula to do so is quite simple:

$$Rating_{new} = Rating_{old} + Weight * (Result_{Actual} - Result_{Predicted})$$

The result of a team's match result is converted into the value $Result_{Actual}$. Using the above formula, the difference in rating points (strength) results in $Results_{Predicted}$.

Should the value $Result_{Actual}$ be better then the new ranking will be higher than the old one. In the same time, if the $Results_{Predicted}$ value is bigger the new rating will be worse.

This reflects that underachievers will loose points while overachievers will gain points.

One conclusion that can be drawn from this basic rule is that the rating points earned by a team for a win are highly dependent on the strength of the opponent. Winning with a small margin against a much weaker team can even lead to loosing points in the end.

5 Criteria for the evaluation

5.1 Actual Result of the Match

It is not only taken into account if a match was won, lost or drawn, but also the goal difference and the goals scored. The specific points can be found in the following table:

	Goal Difference						
	0	1	2	3	4	5	6/+
Goals scored	Actual Match Percentage %						
0	47	15	8	4	3	2	1
1	50	16	8.9	4.8	3.7	2.6	1.5
2	51	17	9.8	5.6	4.4	3.2	2
3	52	18	10.7	6.4	5.1	3.8	2.5
4	52.5	19	11.6	7.2	5.8	4.4	3
5	53	20	12.5	8	6.5	5	3.5

The table indicates the percentage of points for the loosing team. The opponent is awarded the remainder of the points.

Examples: Losing 1-2 delivers 16% , losing 3-8 delivers 3.8% of the 100%.

The table was adapted from the FIFA/Coca-Cola Women's World Ranking system.

5.2 Venue

The venue plays an important role in football. To correct the value of the home advantage, the rating points of the Home team are enhanced by a value of 100. The specific value of 100 is again adapted by the FIFA/Coca-Cola Women's World Ranking system and is based on historical outcomes of football matches. On the same time the away team gets substracted a value of 100 to reflect their disadvantage. Both adjustments are obviously not made if the match is being played on neutral ground.

5.3 Importance of the Match

In difference to all other known ranking systems in football our ranking does not "judge" on the importance of tournaments.

It only separates between friendly matches and competitive matches. Competitive matches get a factor of 40, while friendly matches get a factor of 20.

5.4 Difference in Rating Points

The scaled difference in rating points between the two opponents x is used to predict the outcome of a match. x is simply calculated as

$$x = \frac{r_1 - r_2}{sc}$$

If valid the home/away adjustment is taken into account here and the formula changes to

$$x = \frac{r_1 - r_2 + 100}{sc}$$

for home matches and to

$$x = \frac{r_1 - r_2 - 100}{sc}$$

for away matches. Here r_1 is the ranking of team 1 (before the match) and r_2 the ranking of team 2 (before the match). sc is a scaling factor, which is close to 200. Now the prediction of the match outcome $P(x)$ is calculated as follows:

$$P(x) = \frac{1}{1 + 10^{-x/2}}$$

The value for P in the end always lies between 0 and 1 and reflects the predicted possibility to win the match.

5.5 Weight

In the basic formula there is a one value called *Weight*. This weight is calculated from the current ranking of the team together with a regulatory scaling factor:

$$Weight = \frac{Rating_{old}}{10}$$

This weight helps to avoid teams to ever "fall out" of the rankings with a rating of sub zero.

5.6 Final Formula

As all ingredients have been calculated now the final formula is now

$$Rating_{new} = Rating_{old} + Weight * (Result_{Actual} - Result_{Predicted})$$

with the following parameters:

- $Rating_{old}$ is the rating before the match
- $Rating_{new}$ is the after the match
- $Weight$ is the weight factor as described above
- $Result_{Actual}$ is the actual result in between 0 and 1 gain from the table above
- $Result_{Predicted}$ is the prediction for the match as described above ($P(x)$).