FACT *Sheet*

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FIFA/Coca-Cola Women's World Ranking

Background

In 2003, ten years after the launch of the FIFA/Coca-Cola World Ranking for men's national teams, women's football also started to have an objective yardstick for measuring the sporting performance of a steadily expanding number of national teams. By launching the FIFA Women's World Ranking, FIFA hoped to give the popularity of women's football a well-deserved extra boost. FIFA current estimate for the number of women actively involved in football is 29 million in over 130 countries. Some 6500 games form the basis of the FIFA Women's World Ranking (WWR).

- **Solid foundation: some 6500 games since 1971**
  Europe ~48%, Intercontinental ~20%, Asia ~13%, North, Central America and Caribbean 7%, Africa 8%, Oceania and South America ~2%

Key Criteria

- **Result of the Match**
- **Home v. away, or neutral ground**
- **Goal difference and goals scored**
- **Importance of the match**
- **Difference of team's strengths**

General Considerations

In the FIFA Women's World Ranking teams are ranked according to a value that is a measure of their actual strength. A considerable amount can therefore be learned about the ranking value (or rating points) of a team. For example if a team meets their opponents in a knock-out match on neutral ground it has 72 rating points more, their chances of going through to the next round, are 60%.

Although a certain amount of mathematics is required, the system used is still easily understandable and enables all interested parties to understand the teams' movements. Since the first match dating back to the seventies (the first FIFA-recognised women's international was held on 17 April 1971 when France faced the Netherlands), it has been possible to comprehensively catalogue data relating to international women's football. It is important to take this factor into account, as well as to consider that the intrinsic value of continental championship games and regional friendlies is very relative in many areas of the world. In addition, the Olympic Football Tournament has a high importance within women's football, comparable to a Master's championship, making it the second most important women's football event behind the FIFA Women's World Cup.

Basics of the Ranking Method

The basic formula of the WWR is actually quite simple:

$$\text{WWR, new} = \text{WWR, old} + (\text{Actual} - \text{Predicted})$$

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

Should the "Actual" value be better then the new rating will be higher than the old one. This is fair, as the team will have delivered more than was expected. The underachiever loses the same amount of rating points as their opponents have won; their "Predicted" result is greater than their "Actual" result, i.e. they have not done as well as expected.

One conclusion that can be drawn from this basic rule is that the rating points earned by a team for a win is dependent on the strength of the opponent. A win over an extremely weak team scarcely improves their standing in the WWR, while a win over a stronger team is awarded with a clear increase of the WWR value.

Criteria for the evaluation

Actual result of the Match

Winning or losing of course is the most important criteria, but goal difference and goals scored are also taken into account as is shown in the following table.

Actual Match Percentage from a non-winning perspective

Goals scored	Goal Difference						
	0	1	2	3	4	5	6 /+
	Actual Match Percentage %						
0	47	15	8.0	4.0	3.0	2.0	1.0
1	50	16*	8.9	4.8	3.7	2.6	1.5
2	51	17	9.8	5.6	4.4	3.2	2.0
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	3.0
5	53	20	12.5	8.0	6.5	5.0	3.5

The table indicates the percentage of points for the losing team. The opponent is awarded the remainder of the points, except for a draw (goal difference = 0) when the opponent receives the same number of points.
Examples: *Losing by 1-2 delivers 16%, **losing 3-4 delivers 18%, while ***losing 3-8 delivers 3.8% of the available 100%.

Neutral ground or Home v. Away – the "H" value

To correct the value for a home advantage, the rating points of the Home team are enhanced by a value "H". A glance at the historical results shows that teams perform better at home than away; the home teams keep 66% of the points, while the opponents return home with 34%. To neutralise this effect, a correction is made by enhancing the rating of the home team by a value of 100 points (corresponding to 64%).

Importance of the match – the "M" factor

In friendly matches, the teams representing their countries are not necessarily the best a country has to offer, whilst it is clear that in the FIFA Women's World Cup Final two "ultimate" teams will appear. As a result, matches held at important (qualification) tournaments are a more precise measure of the strength of a team than a friendly. This element is taken into account by introducing the Match Importance "M" factor.

For matches during the FIFA Women's World Cup final tournament, this factor is four times bigger than the value of friendly matches, and for World Cup qualifying matches the difference is a factor of three. So, at major competitions, a lot more rating points can be earned and lost.

However, for friendly matches amongst the top 10 ranked teams, the prestige of these matches make them of more importance and hence also a better estimate of the strength of the teams involved. Therefore, the friendly matches amongst the top 10 ranked teams are awarded double importance compared to regular friendlies.

The following table shows the difference in importance of the competitions

Match importance	Match importance factor (M)	• Basis factor K= 15
FIFA Women's World Cup Match	4	K = 4 * 15 = 60
Women's Olympic Football Tournament	4	K = 4 * 15 = 60
FIFA Women's World Cup qualifier	3	K = 3 * 15 = 45
Women's Olympic Football Tournament Qualifier	3	K = 3 * 15 = 45
Women's Continental Finals	3	K = 3 * 15 = 45
Women's Continental Qualifier	2	K = 2 * 15 = 30
Women's friendly match	1	K = 1 * 15 = 15
Women's friendly match between two top 10 teams	2	K = 2 * 15 = 30

*The 'basis value of K' was set to 15 after several simulations done by ISS and FIFA

Difference in Rating Points

The scaled difference in rating points between the two opponents "x" (x = [r1 - r2] / scaling factor) is used to predict the result of the match. The formula used to do so is of the form:

$$P(x) = 1 / [1 + 10(x/2)]$$

Examples:

Rating point difference	Predicted value
+100	64%
+200	76%
+300	85%
-300	15%

For each team the prediction match percentage "P" is expressed in a value between 0 and 1 as a function of the difference in scaled rating points "x".

The scaling factor is chosen in such a way that the very best in the world can have rating points exceeding 2000, while the absolute beginners score around 1000 rating points.

Final Formula

Now that the ingredients of the ranking have been explained, we can introduce the real formula:

$$R_{AFT} = R_{BEF} + K * (S_{ACT} - S_{EXP})$$

This formula uses the following parameters:

R AFT   Rating after the match

R BEF   Rating before the match

K   Importance of Match

S *ACT*   Actual Result

S *EXP*   Expected result

Note

Following a first evaluation of the Women's World Ranking in November 2004 two changes in the ranking procedure were implemented, first taking effect in the March 2005 ranking.

The first change was an increase of the so-called K-factor, which is reflected in an increase of the various M-factors (importance of a match). The higher this K-factor, the more weight is attributed to the most recent result and the more quickly the rating adapts to recent results.

The second change was related to the importance of friendly matches. Because of the higher prestige of friendly matches between top teams, an extra rule was introduced to double the importance (M-factor) of friendly matches between two teams currently in the top 10.

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FIFA Women's World Ranking – criteria for inclusion in the Ranking

Officially Ranked

The ranking of a team is deemed official when:

- They have played at least 5 matches against teams with an official ranking

- Teams that are inactive during the last 18 months are not listed

- Only teams who had played 5 matches before the 1999 World Cup against teams that had themselves played 5 matches before the 1999 World Cup were included in the inaugural FIFA Women's World Ranking

Display on ranking page

- Teams with an official ranking are shown in regular format

- Teams without an official ranking are displayed in grey (i.e. faded) italics

  If a team was not ranked at all on 31 December 2002, the ranking at the end of 2002 is displayed as "-"

Display on match overview

- If an officially ranked team plays a match against a team without an official ranking, the "points difference" column is filled with "-"

- There is no rating difference for matches played by teams with an official ranking

- For periods during which a team does not have an official ranking, the rating points difference column is empty

- In periods during which a team does not have an official ranking, matches against non-ranked teams are not taken into account

In periods during which a team does not have an official ranking, matches against ranked teams are used to initialise the ranking. The initialisation result is shown in grey italics

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