

Report: 2023 FIDE Gender Equality in Chess Index (GECI)



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Acknowledgements

Report lead: David Smerdon (University of Queensland / FIDE WOM)

Contributors: Carol B. Meyer (FIDE WOM), Dana Reizniece-Ozola (FIDE), María Rodrigo-Yanguas (FIDE WOM), Anastasia Sorokina (FIDE WOM).

Production, communication and outreach: Anna Volkova, Vladimir Kukaev.

Publishers: FIDE, Avenue de Rhodanie 54, 1007 Lausanne, Switzerland. The University of Queensland, St Lucia QLD 4072, Australia.

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1. Summary

The Gender Equality in Chess Index (GECI) is an innovative measure developed to evaluate and compare gender equality within the international chess community. A higher GECI score for a federation implies more gender equality in chess activities. The GECI score is based three essential indicators, chosen to capture gender-related disparities in three crucial dimensions: Participation, Performance, and Progress. These indicators are measured in the rankings as follows:

1. **Participation**, represented by the proportion of female players among the federation’s active players listed on the FIDE ratings master list.
2. **Performance**, represented by the average female Elo rating as a percentage of the average male Elo rating among the federation’s active players listed on the FIDE ratings master list.
3. **Progress**, represented by the proportion of girls participating in the federation’s delegation to the World Youth, World Cadet and selected Continental Youth Championships in recent years.

The indicators were chosen to reflect the efforts of federations, organizations, and individuals to advance gender equality within their chess communities, while also balancing data availability constraints in order to produce rankings for a wide range of countries. The indicators are aggregated in such a way that no single indicator dominates the rankings, and gives a score between 0 and 100. A score of 100 would be achieved by a country that has an equal representation of men and women in terms of Participation, an equal representation of boys and girls in terms of Progress, and in which the average FIDE ratings are equal between the genders.

Further details of the methodology and data sources can be found in the Technical Notes at the end of the report. On the GECI web page, you can interact with the data by using filters to explore the final rankings for each indicator separately, and by continent.

The 2023 rankings

The full GECI ranking list for 2023 is found over the following pages, along with a map of scores across the world. 105 federations have received a score, on account of having sufficient data in all three of the indicators. The top-ranked country in the inaugural list is Mongolia, with a score of 86.53 out of a possible 100. Almost 40% of Mongolia’s active FIDE players are women, compared to the global average of 16%.

The second-ranked country is Sri Lanka with a score of 85.47, and which also has the second-highest Participation score (35.17%). In third place is Uganda (79.54), which, in addition to high Participation and Performance indicators, scores especially high for Progress. From the Americas, the highest-ranked country is Bolivia (76.56, overall rank: 6), while Georgia (72.75, overall rank: 12), with its rich history of women’s World Chess Champions, is the highest-ranked European country.

Following the rankings, the section *Stories From The Rankings* reports on interviews from players and leaders of high-ranking federations, and provides more qualitative insights about which sort of policies can be successful for targeting gender equality in chess.

The FIDE Women’s Commission, as the creators of the GECI, intend to update these rankings every two years. We hope that the new Index can help foster positive and constructive discussions within federations and across the broader chess community. It is our goal to track and inspire progress towards gender equality in the world of chess, fostering a more inclusive and equitable environment for everyone in the game.

2023 GECI Rankings

Rank	Country	GECI	Continent	Participation	Performance	Progress
1	Mongolia	86.53	Asia	39.90	90.98	44.63
2	Sri Lanka	85.47	Asia	35.17	90.51	49.02
3	Uganda	79.54	Africa	29.76	84.58	50.00
4	Vietnam	79.24	Asia	27.55	95.41	47.33
5	Namibia	76.75	Africa	28.29	79.91	50.00
6	Bolivia	76.56	Americas	25.50	87.99	50.00
7	Malaysia	75.83	Asia	27.69	89.46	44.00
8	Costa Rica	75.69	Americas	25.19	86.06	50.00
9	Guyana	75.51	Americas	25.68	83.83	50.00
10	Kenya	73.78	Africa	24.54	81.84	50.00
11	Ecuador	73.54	Americas	24.81	93.51	42.86
12	Georgia	72.75	Europe	23.61	92.55	44.06
13	Zimbabwe	72.69	Africa	23.66	81.14	50.00
14	Taiwan	71.19	Asia	24.61	87.99	41.67
15	Azerbaijan	70.86	Europe	22.57	94.48	41.73
16	Latvia	70.10	Europe	19.79	93.27	46.67
17	Moldova	69.89	Europe	19.80	91.81	46.94
18	Kyrgyzstan	69.81	Asia	19.49	87.32	50.00
19	South Africa	69.59	Africa	21.16	81.06	49.12
20	Guatemala	69.53	Americas	21.23	89.06	44.44
21	Peru	69.51	Americas	20.72	85.21	47.57
22	Jamaica	69.31	Americas	18.02	92.34	50.00
23	Turkey	68.86	Europe	21.64	86.13	43.82
24	India	68.54	Asia	18.38	88.31	49.59
25	Russia	67.53	Asia	19.51	86.99	45.37
26	Panama	67.24	Americas	18.78	80.95	50.00
27	Botswana	67.02	Africa	18.11	83.09	50.00
28	Venezuela	66.85	Americas	19.38	83.48	46.15
28	Uzbekistan	66.85	Asia	19.91	88.36	42.42
30	Belarus	66.16	Europe	15.64	92.60	50.00
31	Singapore	66.15	Asia	18.58	92.25	42.22
32	Paraguay	65.32	Americas	19.09	91.26	40.00
33	Colombia	65.23	Americas	18.96	89.45	40.91
34	Croatia	65.15	Europe	16.14	85.67	50.00
35	Brazil	65.02	Americas	18.72	86.94	42.22
36	Philippines	64.67	Asia	16.38	87.13	47.37
37	South Korea	64.48	Asia	20.00	87.95	38.10
38	Lithuania	64.21	Europe	16.60	92.20	43.24
39	New Zealand	63.67	Asia	14.01	92.12	50.00
40	Mexico	63.65	Americas	16.32	87.29	45.26
41	Algeria	63.61	Africa	15.05	85.51	50.00
42	Kazakhstan	63.37	Asia	17.04	92.54	40.34
43	Romania	63.27	Europe	20.79	85.58	35.59
44	Greece	63.08	Europe	20.74	82.12	36.84
45	Cuba	63.07	Americas	21.37	88.01	33.33
46	Monaco	63.04	Europe	30.36	82.52	25.00
46	Bulgaria	63.04	Europe	16.82	90.14	41.30
48	Iran	62.77	Asia	13.93	88.76	50.00
49	Poland	62.72	Europe	16.57	89.69	41.50
50	Hungary	62.62	Europe	14.47	88.57	47.92
51	France	62.42	Europe	15.97	81.98	46.43
52	Zambia	61.80	Africa	17.78	73.00	45.45
53	Indonesia	61.72	Asia	18.17	93.22	34.69
54	Slovenia	61.48	Europe	13.09	90.33	49.15
55	Ukraine	60.91	Europe	13.66	89.90	46.00
56	Estonia	60.62	Europe	17.05	88.00	37.14

2023 GECI Rankings (*continued*)

Rank	Country	GECI	Continent	Participation	Performance	Progress
57	Malawi	60.15	Africa	16.79	70.67	45.83
58	Ghana	59.59	Africa	13.43	78.77	50.00
59	Armenia	59.53	Europe	16.72	93.74	33.64
60	Slovakia	59.02	Europe	11.39	90.27	50.00
61	Honduras	58.83	Americas	19.11	85.23	31.25
62	Thailand	58.72	Asia	20.26	81.20	30.77
63	Maldives	58.59	Asia	23.81	63.35	33.33
64	Serbia	57.67	Europe	10.72	89.45	50.00
65	Italy	57.58	Europe	13.28	83.25	43.18
66	Germany	55.78	Europe	9.88	87.78	50.00
67	Tanzania	55.05	Africa	21.08	85.71	23.08
68	Chile	54.81	Americas	13.14	79.01	39.66
69	Albania	53.86	Europe	13.88	90.08	31.25
70	Bangladesh	53.53	Asia	9.30	82.43	50.00
71	Portugal	53.51	Europe	13.05	81.59	36.00
72	Egypt	53.15	Africa	9.42	79.65	50.00
73	North Macedonia	52.84	Europe	10.90	84.64	40.00
74	England	52.81	Europe	9.44	87.79	44.44
75	Spain	52.46	Europe	11.05	85.12	38.37
76	Tunisia	52.37	Africa	14.66	73.45	33.33
77	United Arab Emirates	52.18	Asia	34.47	82.44	12.50
78	Argentina	51.40	Americas	7.71	93.60	47.06
79	Czechia	50.29	Europe	8.52	87.62	42.59
80	Uruguay	50.03	Americas	10.04	86.43	36.07
81	Bosnia & Herzegovina	49.54	Europe	8.25	82.97	44.44
82	United States	49.51	Americas	8.76	91.88	37.70
83	Montenegro	49.43	Europe	10.04	81.02	37.14
84	Malta	49.35	Europe	9.54	89.25	35.29
85	Angola	49.30	Africa	10.82	72.00	38.46
86	Canada	49.07	Americas	8.20	88.65	40.60
87	Belgium	47.88	Europe	7.86	85.85	40.68
88	Australia	47.54	Asia	9.10	92.21	32.00
89	Cyprus	47.32	Europe	10.18	92.55	28.12
90	Israel	47.00	Europe	6.26	92.04	45.05
91	Dominican Republic	46.80	Americas	10.80	86.97	27.27
92	Lebanon	45.54	Asia	9.61	85.96	28.57
93	Scotland	45.40	Europe	7.27	91.15	35.29
94	Norway	44.32	Europe	6.31	88.48	38.96
95	Austria	44.07	Europe	7.78	90.18	30.51
96	Switzerland	44.05	Europe	7.37	94.22	30.77
97	Luxembourg	43.05	Europe	7.58	100.00	26.32
98	Puerto Rico	41.61	Americas	13.72	91.86	14.29
99	Finland	41.27	Europe	5.90	84.80	35.14
100	Netherlands	40.59	Europe	4.91	88.96	38.30
101	Hong Kong	39.61	Asia	11.73	92.66	14.29
102	Sweden	39.48	Europe	7.70	84.93	23.53
103	Ireland	38.78	Europe	4.36	92.69	36.11
104	Iceland	37.30	Europe	8.87	87.82	16.67
105	Denmark	34.34	Europe	3.39	89.48	33.33

2. Stories From The Rankings

The FIDE Women's Commission contacted representatives of several of the higher-ranked countries to understand some of the factors that have been successful in developing women and girls' chess. From the responses, four common themes emerged. The first theme was **the representation of women in leadership and executive roles** in the federation. The second theme related to **resources**, such as equal funding for representative teams, and prize-money in tournaments. The third theme related to **quotas**, such as mandating at least one female player in each team in national chess leagues. The final theme was having **strong female role models and mentors** within the federation's chess community.

Below are some stories collected from these interviews, with photos supplied by the representatives.



Mongolia

Mongolia is clearly the top-ranked country in the 2023 GECI rankings, with a score of 86.53 out of a possible 100. Almost 40% of Mongolia's active players on the September 2023 FIDE rating list are women, and the federation also scored highly on both *Performance* and *Progress*.

Mongolia has a strong track record of promoting chess to people of all types throughout the country. The Mongolian federation's president, Gurvanbaatar Erdenebaatar, commented that "Mongolians have been playing and developing chess since ancient times and nowadays people are paying a lot of attention in teaching chess to their kids because of the successful achievements of our youth and professional women players." He noted several examples, including the running of FIDE's Chess in Schools project in several schools, a concerted effort to promote chess in remote areas of the country, and a recent government initiative to form a children's foundation, which supports talented juniors and opens up opportunities to new talents.

Regarding the factors that underpin Mongolia's success in the GECI rankings, Mr Gurvanbaatar highlighted two policies: "Mongolian Chess Federation maintains a policy of equal prize money for men and women chess players at national level tournaments. In addition, consistent with the call of FIDE when announcing the year of women's chess in 2022, we try to involve our women chess players in decision-making at the management level."

FIDE also interviewed IM Munguntuul Batkhuyag, Mongolia's highest-rated female player, to shed some light on Mongolia's success from a player's perspective.

Can you tell us about your journey to becoming one of the top chess players in your country?

I learned to play chess at the age of 5 and became a Woman Grandmaster at 15. I am the first Woman Grandmaster in Mongolia and have been ranked first in Elo for 20 years. My father taught me chess and coached me. When I was 12 years old, my father started working at a scientific institute in Moscow and our family lived in Moscow for 10 years. There I started playing chess more professionally and started playing in adult open tournaments and this influenced my development as a chess player. One of the reasons for my becoming the leading chess player in Mongolia, in my opinion, is that I started playing in adult tournaments early. Before I moved to Moscow, at the age of 12 I took second place in the national championship and from the age of 13 I started playing chess Olympiads.



IM Munguntuul Batkhuyag
(photo: David Llada)

What kind of support did you receive from your federation and community as you progressed in your career? We have a government bonus when we become a Grandmaster. Also since 2012 with a break for 4 years we have a national team that receives a salary from the state. Now there is a tendency to increase the support of the national team, and, for example, the national championships have the same prize fund for both women and men.

What were some challenges you faced as a woman in chess, and how did you overcome them? I believe that I did not have any special difficulties just because I am a woman chess player. Of course, since I'm a woman, I had breaks in chess due to the birth of three children - but I'm just very glad that I play chess, and not another sport. I didn't take big breaks and I played during pregnancy and started playing in the first months after giving birth. Of course, I also give great credit to the support of my family.

In your opinion, how can the chess community further improve gender equality in the sport? I would like more women's tournaments and an increase in the prize fund.

How do you think your success is influencing younger generations, especially girls, in your country to take up chess? I think it has a big effect!



The Mongolian women's team at the 2018 Olympiad in Batumi

Uganda

The highest-ranking African federation in the list is Uganda (79.54, overall rank: 3). Uganda is the location of the film *Queen of Katwe*, which tells the true story of WCM Phiona Mutesi's chess journey from the slums of Kampala to the World Chess Olympiad. Uganda scored the maximum score of 50 for *Progress*, and in fact is one of the few federations that has sent more girls (69%) than boys to World and Continental youth events.¹

Within the Ugandan chess context, there are a number of factors that may go some way to explaining the country's success in the rankings. These include: equal funding provided to both men's and women's teams for major events like the Olympiad; Female representation on the Uganda Chess Federation's

¹Only 14 of federations with sufficient data sent a majority of girls to World and Continental youth events in the period. Of these, most are from Africa, including those with the highest percentages of girls' participation: Egypt (83%), Botswana (79%), Kenya (74%), Zimbabwe (68%), and Namibia (58%).

(UCF) executive team; and requiring at least one female player per participating team in the Ugandan Chess League (UCL). FIDE spoke with Emmanuel Mwaka, President of the Uganda Chess Federation, to learn more.

In your opinion, why do you think there is such a high percentage of women out of the Ugandan players on the FIDE rating list? Ugandan women are dynamically participating in competitive chess, both within their local context and on the international stage. It underscores the strategic approach taken by UCF leadership to acknowledge and consciously involve women in the chess community's activities in Uganda. Additionally, Uganda's cultural ethos contributes to this empowerment, as echoed in the African saying, "Empowering a woman empowers a nation," underscoring the importance of fostering women's involvement. This cultural perspective also serves as a call to action, challenging the male members of the Ugandan chess community to contribute to nation-building by empowering women in the realm of chess.

Why do you think Uganda scores so highly when it comes to chess gender Progress? Uganda has a clear criterion of progressively empowering the female players and in encouraging young females to excel in chess. By having women compete for both the men's and women's prizes, there is a break from conventional norms, allowing female players to demonstrate their skills and contribute to the advancement of chess as a whole. This approach aligns with the belief that progress is not achieved by isolation, but by integration.

What are some of the policies and initiatives in Uganda that have contributed to this chess culture for women and girls? I will mention three things.

1. Leadership positions: Ugandan ladies' representation on the Uganda Chess Federation's (UCF) executive body demonstrates that women's perspectives and contributions are valued at the highest levels. To serve on the UCF executive means the ladies serve both men and women and this encourages other female chess players to engage in chess activities. The UCF also has a women's committee to handle female gender issues only.

2. Equal funding opportunities: The equal funding provided to both men's and women's teams for chess events like the Olympiad fosters an environment of parity, emphasizing that skill knows no gender boundaries.

Furthermore, initiatives like ladies' prizes highlight the commitment to promote women's involvement, akin to nurturing a garden where diverse flowers bloom harmoniously.

3. Safeguarding of the vulnerable: In safeguarding the girl child's interests, the presence of a ladies' patron or captain during national annual competitions exemplifies the commitment to providing a secure and nurturing environment.



The Ugandan teams at the 2022 Olympiad in Chennai.

What were some challenges facing women in chess, and in your opinion, how can the chess community further improve gender equality in the sport? The long days of tournaments pose a challenge for women and girls, making it difficult for them to prioritize participation over their other competing commitments. To enhance their involvement, we can create tournaments tailored to women's needs, akin to what we do for juniors and seniors. Single-day tournaments are particularly effective, as demonstrated by the annual Women's Day chess event, which draws around 100 female participants.

As a community, we must construct more supportive frameworks for women and girls in the realm of chess, and evaluate the atmosphere within the chess community. Is it conducive to attracting and retaining

female players, or does it inadvertently deter them? We must cultivate better systems and orientations within the predominantly male chess community to better empower and encourage the growth of female players.

One of the challenges faced by our daughters is the lack of female mentors who can guide them through the unique obstacles encountered by female chess players. The inclusion of top female coaches in a chess Master Class, as role models, demonstrates the potential to invigorate aspiring young female players to reach for greatness, just as those before them have achieved.



The Ugandan Women's Team team at the 2018 Olympiad in Batumi, with a new fan.
(photo: David Llada)

How important are success stories like the Queen of Katwe for encouraging girls to persist with chess? The success stories in chess in Uganda have had a significant impact on younger generations, particularly girls, in several ways:

- **Role models.** When young individuals see someone from their own country or background achieving success in a field like chess, it creates relatable role models. Successful players can inspire young girls to believe that they too can excel in a traditionally male-dominated field.
- **Breaking stereotypes.** The success of girls in chess has challenged traditional gender stereotypes and biases, demonstrating that intelligence, strategy, and determination are not bound by gender. This has encouraged more girls to step outside of societal norms and pursue interests they are passionate about.
- **Increased visibility.** The increased media coverage and attention that success stories bring to the chess community have led to greater visibility for the sport. This exposure has attracted more individuals, including young girls, to take up chess and explore its intricacies.
- **Boosting confidence.** Witnessing peers achieve success has boosted the confidence of young girls. When they see others achieving their goals, it helps them believe in their own potential and fosters a sense of self-assurance.
- **Community and support.** As the Uganda Chess national league and school chess championships grow, a community of players, parents, coaches, and enthusiasts has been formed. This sense of community provides a supportive environment for young girls to learn, practice, and improve their skills in chess.
- **Educational benefits.** Chess has been shown to enhance critical thinking, problem-solving skills, concentration, and strategic planning. As more girls take up chess, these cognitive benefits contribute to their overall academic performance and intellectual growth. Several young girls now study on full scholarships in Uganda because of success in chess.

- **Empowerment.** Uganda’s success stories in chess continue to empower young girls by showing them that they have the ability to achieve greatness in any field they choose. It teaches them the value of dedication and hard work in pursuing their goals.
- **Diverse representation.** The success stories contribute to diverse representation within the chess community, which in turn fosters inclusivity, and a sense of belonging. This attracts more individuals from different backgrounds to participate in the sport.

What message would you give to young girls in your country who aspire to become professional chess players? Our dear young queens: “like the lioness in the Ugandan jungle, you have to be courageous and chase your dreams on the chessboard with grace and fierceness. The river does not ask permission to flow, nor should you seek approval for your ambitions. Let your moves echo the rhythm of the African drum, resonating determination, strength and wisdom. In Uganda we do not have so much luxury or opportunities and therefore, chess in your life is an opportunity, you are the architects of your destiny. Embrace the challenge, for it is through adversity that diamonds are forged. Remember, a single sunbeam can drive away many shadows. Your brilliance will light up the path for others. Go forth, mighty warriors, and play your moves with the spirit of Ubuntu. The world is your chessboard; make it your masterpiece.”

★ Vietnam

When it comes to closing the *Performance* gap between men and women, arguably the most impressive country is Vietnam (GECI score: 79.24, overall rank: 4). The average rating of Vietnam’s 188 FIDE-rated women is 1508, which is just below that of the men (1581). This is similarly reflected in the world rankings: while Vietnam was 44th in the Open rankings in September 2023, it was placed 20th in the Women’s rankings.

The following insights are from WGM Vo Thi Kim Phung, who played Board 1 for Vietnam at the 44th Chess Olympiad in Chennai, 2022.

What strategies has your federation implemented to encourage more women and girls to participate in chess? The chess movement is developing quite well in my country. Chess is brought into elementary schools and as a regular subject in some schools. Each professional chess player has to go through selection challenges at the local to national levels. National team members will have to focus on training in one of two big cities: Hanoi and Ho Chi Minh.

What were some challenges you faced as a woman in chess, and how did you overcome them? I think when playing any sport or doing a certain job, most people think that men will do better than women. In my opinion, everything that men can do, women can also do. Sometimes, men tend to be dismissive and subjective when it comes to women, so I will do my best to prove that women can also beat men if you don’t focus.

From your experience, what effect does motherhood have on a woman chess player’s career? I think when we become mothers, we will have to spend more time with our children and family. It’s sensible to arrange your working time reasonably and take more care of your health. In my



The Vietnamese Women’s Team at the 2023 Asian Games in Hangzhou

case, I have support from my husband and family. However, when I became a mother, my mind and my priorities have naturally shifted to give more to my children. Still, I often try to take advantage of my free time to practice more.

How do you think your success is influencing younger generations, especially girls, in your country to take up chess? People often comment on me for being resilient, brave and not afraid to overcome difficulties.

What do you see for the future of chess in Vietnam? I think there are a lot of young talents in Vietnam. To be able to develop more, one challenge is that our opportunities to participate in international competitions are limited. The environment in the Asian region will naturally have fewer tournaments than the European region. Economic problems are also a big obstacle to development. However, if you know how to seize the opportunity and always make constant efforts, and try hard, I believe that sooner or later Vietnamese chess will be successful on the international stage.



The Vietnam women's team at the 2022 Chennai Olympiad

Monaco

Although Monaco is among the world's smallest nations, it boasts a vibrant chess culture and ranks second in per capita FIDE-listed players.² While the limited data for *Performance* and especially *Progress* means that Monaco's scores for these indicators, and its overall GECI score, are somewhat unreliable, special note should be given to Monaco's very high *Participation*. Monaco has the highest women's participation in Europe and is one of only four countries in the rankings that have over 30% women among their active FIDE-listed players.³

Despite its small size, Monaco has had significant success in international women's competitions. The Cercle d'Échecs de Monte-Carlo (CEMC) holds the record for most victories in the European Club Cup (Women), with 8 titles. FIDE spoke with Jean Michel Rapaire, President of the Monaco Chess Federation (FME) and of CEMC, to understand more about chess for women and girls in Monaco.

²The highest per-capita chess population is Iceland, with an average of 7 FIDE-listed players for every 1,000 inhabitants. Monaco is second with 6 players per 1,000, followed by Slovenia with 3 per 1,000.

³Globally, the other three countries with *Participation* above 30% are: Mongolia (39.9%), Sri Lanka (35.2%), and the United Arab Emirates (34.5%).

In your opinion, why do you think Monaco has such high women's chess Participation?

For more than 20 years, we have had the development of women's and youth chess as a policy. From 2007 we focused our efforts on winning the European Women's Club Cup, and we have now won 8 Cups. It's a very beautiful showcase, and helps to inspire our young players.

What challenges have you faced, and what strategies have you put in place, to encourage more women and girls to participate in chess?

Between 1978 and 2010 we did not send a women's team to the Olympiad. We set this as a goal for the Istanbul Olympics in 2012. Initially, it seemed that we could only fill three boards, with a team made up of two young players, Mathilde Chung, 13, and Noela Joyce, 11, and an 'experienced' player, Julia Lebel Arias. However, we managed to complete the team with 2 'moms'. Since then, our women's team has been present at all the Olympiads.

For high-level tournaments, we have focused on organizing women's tournaments. These include the FIDE Grand Prix in 2015 and 2019, and the European Rapid and Blitz Championships in 2017 and 2019, where all our women can participate whatever their level and age and rub shoulders with the European elite. We have two ambassadors of women's chess, Pia Cramling and Almira Skripchenko, who play for CEMC.

Last year, we organized the first European Small Nations Women's Individual Championship in Monaco, and soon we will organize the competition as a women's or mixed team.

One final thing to mention, which may be small but to me it is important: our Women's logo, which we created especially for the 2015 FIDE Women's Grand Prix and which took place in the Monte-Carlo Casino. We put it on posters and clothing; it is our soul, from our top players to our beginners. Women represent more than 50% of the population; if we want more chess players, we must encourage our girls to want to play.



Monaco's logo féminin

Can you share a success story of a woman or girl in your country who has significantly benefited from your initiatives?

Fiorina Berezovsky has been playing at the club since she was 7 years old. At 9 years old, she participated in the Baku Olympiad in 2016, and now at 15 years of age, she has participated in three Olympiads. Fiorina has also participated in several World and European Youth Championships, and she is one of the six junior peace champions of the Peace and Sport movement.



Left: Pia Cramling, Prince Albert II of Monaco, and Almira Skripchenko. Right: Jean Michel Rapaire and the next generation of Monaco chess, outside the famous Monte-Carlo Casino.

3. Technical Notes

The GECE leverages a geometric mean of the three indicators to maintain scale-invariance and ensure that no single indicator dominates the scores. It is scaled so that a score of 100 would represent a country with a perfect score for *chess gender equality*. The geometric mean requires that no indicator receives a score of zero, and so lower bounds are manually set. A higher GECE score indicates higher gender equality in chess. For example, Mongolia, which is ranked first, has the highest GECE score of 86.53.

For the inaugural 2023 GECE, the three indicators were calculated as follows:

1. Participation

The primary data source used was the 2023 September FIDE master rating list. Only active players were included, but no restrictions were made on rating. In particular, players were not required to have a Standard Elo rating to be included, so long as they appeared on the list. The *Participation* score was then calculated as the percentage of female players out of all (active) players from that federation on the list. A lower bound of 1% and an upper bound of 50% were set. A federation received a score for this indicator so long as it had at least 50 active players on the rating list.

2. Performance

The primary data source used was the same as above. Out of a federation's active players with a Standard Elo rating, the *Performance* score was then calculated as the average rating of the female players divided by the average rating of the male players. A lower bound of 10% and an upper bound of 100% were set. A federation received a score for this indicator so long as it had at least 10 active players with a Standard Elo rating.

3. Progress

Data from most recent World Cadet and World Youth Championships (2019, 2021 and 2022) were used, in addition to data from available Continental Youth Championships in 2022 and 2023. At the time the rankings were calculated, this included the following Continental Youth Championships: 2022-23 African, 2022 Asian, 2022-23 European, 2022-23 Pan-American. A lower bound of 10% and an upper bound of 50% were set. A federation received a score for this indicator so long as it had at least 10 participants across the above events.

A GECE score for a federation, $GECE_f$, is calculated using the equation:

$$GECE_f = \frac{(I_{Part} * I_{Perf} * I_{Prog})^{1/3}}{GECE_{perfect}} * 100$$

where $GECE_{perfect} = (50 * 100 * 50)^{\frac{1}{3}}$ is the value of the numerator above for a hypothetical country with 'perfect' gender equality for each of the participation, performance, and progress indicators.

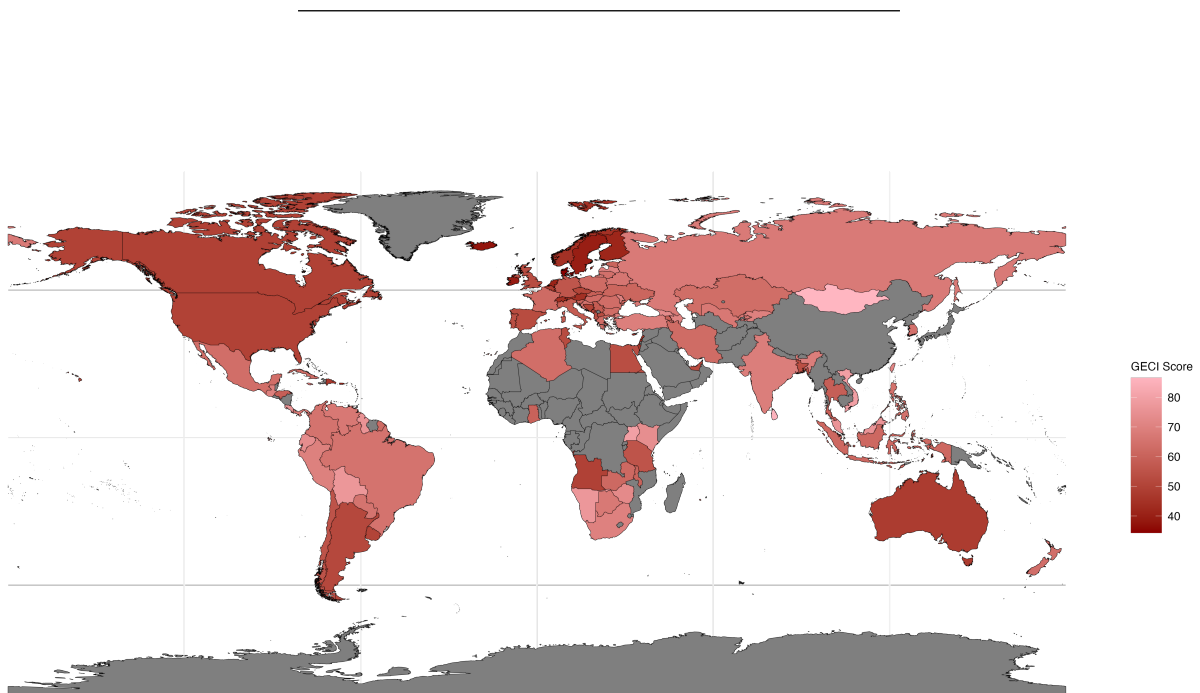
Data for all three indicators was available for 105 chess federations, and these are included in the final rankings. 76 federations were excluded due to missing data for Indicator 3 (Progress), mainly due to having too few participants in the World Youth, World Cadet, and Continental Youth/Cadet Championships. A further 20 federations were also missing data for Indicator 2 (Performance), primarily because they had no active Elo-rated female players at the time.

The methodological choices in the creation of the GECE were carefully made to balance the competing goals of ensuring the reliability of indicator scores and attempting to include most federations in the rankings. Despite this exercise, any statistical index is by definition an imperfect measure, and so the rankings and any associated comparisons should be interpreted with caution for smaller federations. For example, while Monaco's (63.04, overall rank: 46) *Participation* score of 30% is derived from a moderately-sized sample of 224 players, the samples for *Performance* (48 players) and *Progress* (16 players) are much smaller, and therefore Monaco's scores for these indicators are less reliable. A notable

omission in the 2023 rankings is China, which did not have enough data for a *Progress* score at the time of publication on account of its top juniors being unable to travel to world and continental age championships during the COVID-19 pandemic. China scored very strongly on the other indicators (*Participation*: 27.09; *Performance*: 95.05) and will receive its first ranking in the next GECI edition.

Similarly, as with any cross-country index, there are numerous other factors that aren't captured by the rankings. For example, federations in the rankings vary considerably in terms of the size of the federation, average age of the players, number of tournaments submitted to FIDE, as well as other cross-country economic and cultural factors. Some federations may have strong chess programs for children and schools that are not yet captured by the *Progress* indicator. We acknowledge that all statistical indexes are imperfect, and that the GECI cannot capture the many efforts by chess federations to promote women's and girls' chess, from grass-roots organisations to national executives.

However, despite these shortcomings, we believe the GECI is a good start, and we hope that it can foster positive and constructive discussions within federations and across the broader chess community. It allows members of federations and other organisations to set quantifiable targets for women and girls' chess within each country, and to track progress over time. It is our goal that the GECI might serve as a useful tool towards gender equality in the world of chess, fostering a more inclusive and equitable environment for everyone in the game.



World map of 2023 GECI rankings. Countries in grey have insufficient data to be ranked. A score of 100 represents 'perfect' gender equality across the three indicators of *Participation*, *Performance* and *Progress*.