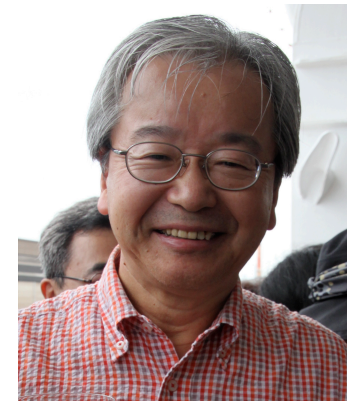


Women in Astronomy: A view from a gender-imbalanced country

Yuko MOTIZUKI
(RIKEN, Japan)

in collaboration with

former President, IAU, Prof. Norio KAIFU, R.I.P.



Yuko Motizuki;

- former Vice-President, ASJ, 2017-2015
- Executive Committee Member, Women in Astronomy, IAU, 2012-2009, and
- Working Group Member, WiA, IAU, 2018–present
- Member, Gender Equality Committee, ASJ, 2017-2006, and
- Observer(Advisor), GEC, ASJ, 2018–present
- She introduced child-care for JPS annual meetings based on that of ASJ (2010–)
- She introduced networking for women researchers at ASJ annual meetings, including men (2010–present)

IAUS358 @Mitaka, Nov. 13, 2017

Why Diversity is Important

- Diversity is key to being more productive
- Recognition of diversity makes society stronger
- More diversity makes life easier for people of every gender
e.g., Governmental edict “2030 in Japan”: 30% of women to be leaders by 2020
- **“Our sense of diversity develops with experience of interactions with many different people”**
– Prof. Sadako OGATA (1927–2019), R.I.P.,
first woman and first Japanese and first academic
Head of UNHCR (1990-2000)

IAU Statistics (2019)

Headquarters staff of IAU (2018-2024)



Prof. Ewine van Dishoeck
IAU President
(2nd from right)

- Women members in IAU countries: **18% (average)**
 - Japanese Women in IAU: **only 8%, lowest % in top 25 countries**
 - Yet total Japanese membership is no. 3 in IAU
- Emphasis in my talk:
- Importance of women participation in decision-making

Some Woman Professors of IAU



Prof. Jocelyn Bell Burnell,
UK

©The Guardian



Prof. Margaret Burbidge,
USA

Annie Gracy/Wikipedia, CC BY-SA



Prof. Mariko Kato,
Japan

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- Today's better environment for women has **NOT** been given freely, but achieved thanks to the efforts of a number of now **senior women and men**
- We are still fighting gender-based discrimination

“HeforShe”* Initiative in ASJ – An Example

*A solidarity campaign for the advancement of gender equality, initiated by UN

特集 | 男女共同参画社会における日本の学術



“A status report for women in astronomy of Japan”
Prof. Satoru Ikeuchi,
Journal of the Science Council of Japan (2000)

PD・OD問題と

1990年代に入って、旧7帝大を中心に大学院重点化が進められた。大学の主体が大学院となり、学部定員を上回る定員を大学院で受け入れるようになったのである。高度学歴社会が到来しての当然の成り行きではあるが、残念ながら大学院を卒業した人たちが企業に大量に受け入れられる事態にはなっていない。その結果、PD（2～3年程度の任期付きポストに就いている若手のポスドク）・OD（オーバードクター、博士浪人）が大量に生じている。一般には、PDに年齢35歳以下という制限がついており、おそらく、ここ数年の間に、PD・OD問題は過去と比べるといっそう深刻な様相を呈するのではないかと危惧している。

実を言えば、天文学分野では、かつては博士浪人は珍しい存在ではなかった。経済成長とは無縁な天文学への国家の投資が非常に少なく、日本の天文学コミュニティは、長い間小さいまま推移してきた。そのため、天文学の研究を志す若手研究者は、大学院を出ても無給の時代を長く過ごすことを覚悟しなければならなかったためである。しかしながら、コミュニティが小さかった間は、「好きだから仕方がない」とされ、社会的な問題にもならなかった。

礎的な法則の宇宙における展開という新しい視点が成功して、天文学は物理学の重要な柱へと成長した。日本においても、1970年代から、物理学科内で天文学を専攻する講座へ転換したり、電波望遠鏡のような新しい観測装置が建設され、古い天文学からの脱皮が図られた。また、理工系ブームで大学院も大きく拡充され、天文学を専攻する大学院生も増加してきた。

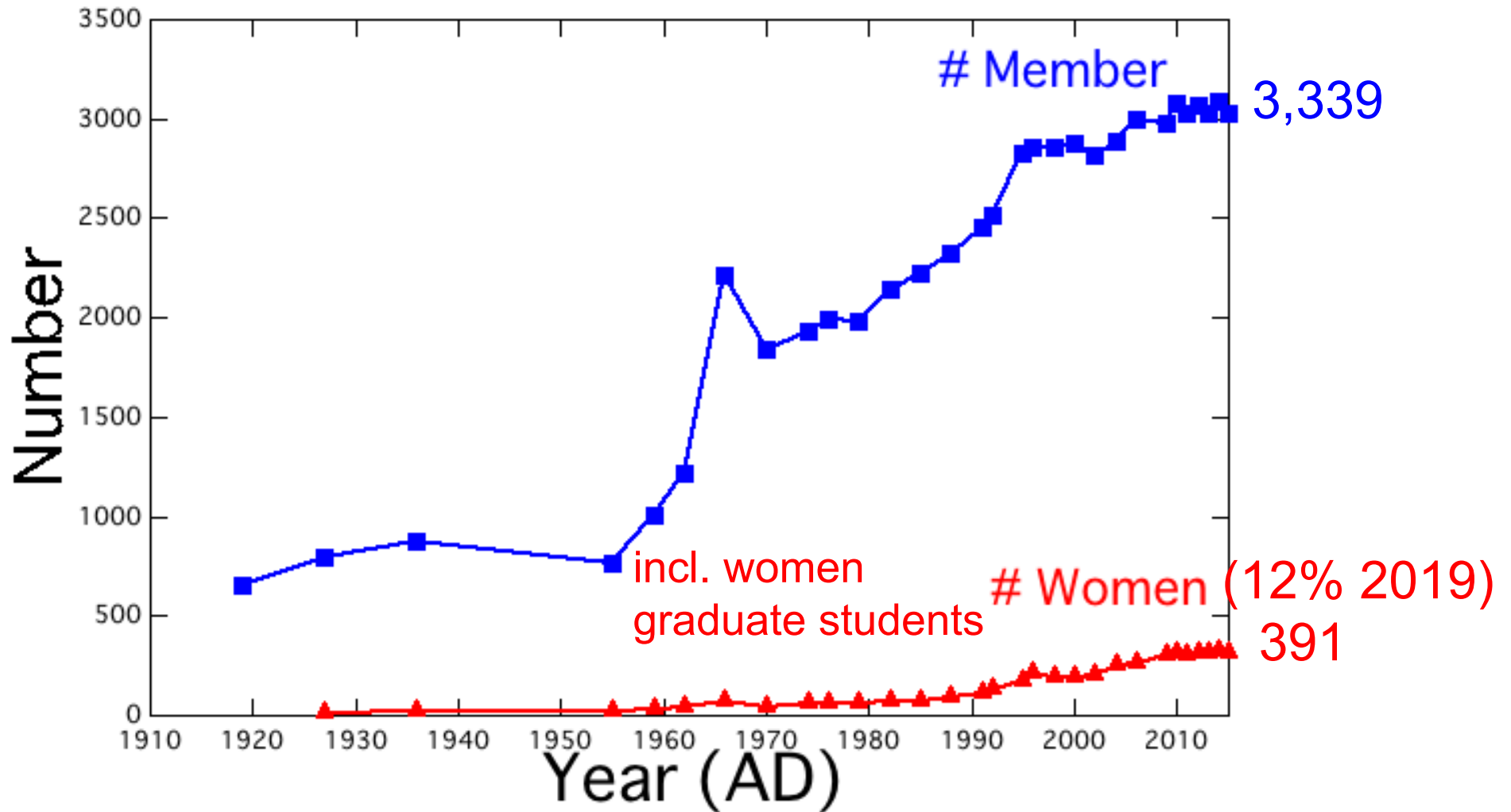
その結果、1980年前後にOD問題が深刻になった。このときは、1960年代後半の理工系ブームで大学院が拡充されたが、その新規ポストは若手の研究者が占めてしまったため人事が停滞したことが原因であった。したがって、天文学分野だけでなく理学関係の諸分野でOD問題が発生したのである。一般に、大学院が拡充されてもスタッフの定員は大きく増加しないから、OD問題がやや時間が遅れて発生する。この頃は、ポスドク制度がまだ整備されていないためPDは少なく、もっぱらOD問題として終始した。やがて、大学院定員の自己調節などで、いったんはOD問題は終息した。

そして21世紀の初頭に
題が生ずるのではないかと

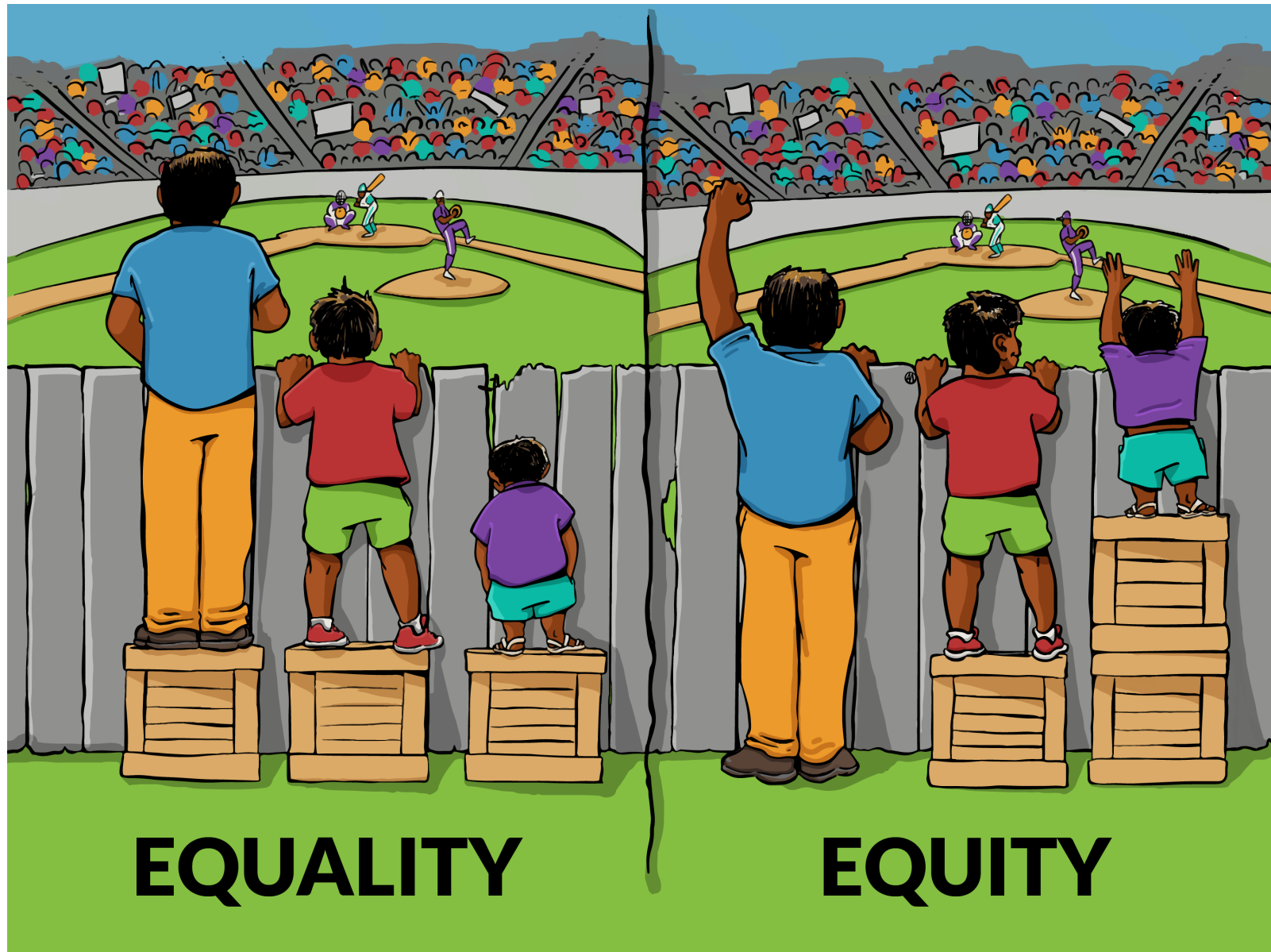
Y. MOTIZUKI, IAUS358, Nov. 2019

- Prof. Ikeuchi worked with Prof. Mariko Kato on e.g., the use of maiden names by all academics in Japan
- Women wanting to change society need to remember:
 - Men are not enemies!
 - **Women are not enemies either!!**
 - We need solidarity, women and men together
 - Women need to be supportive of younger women

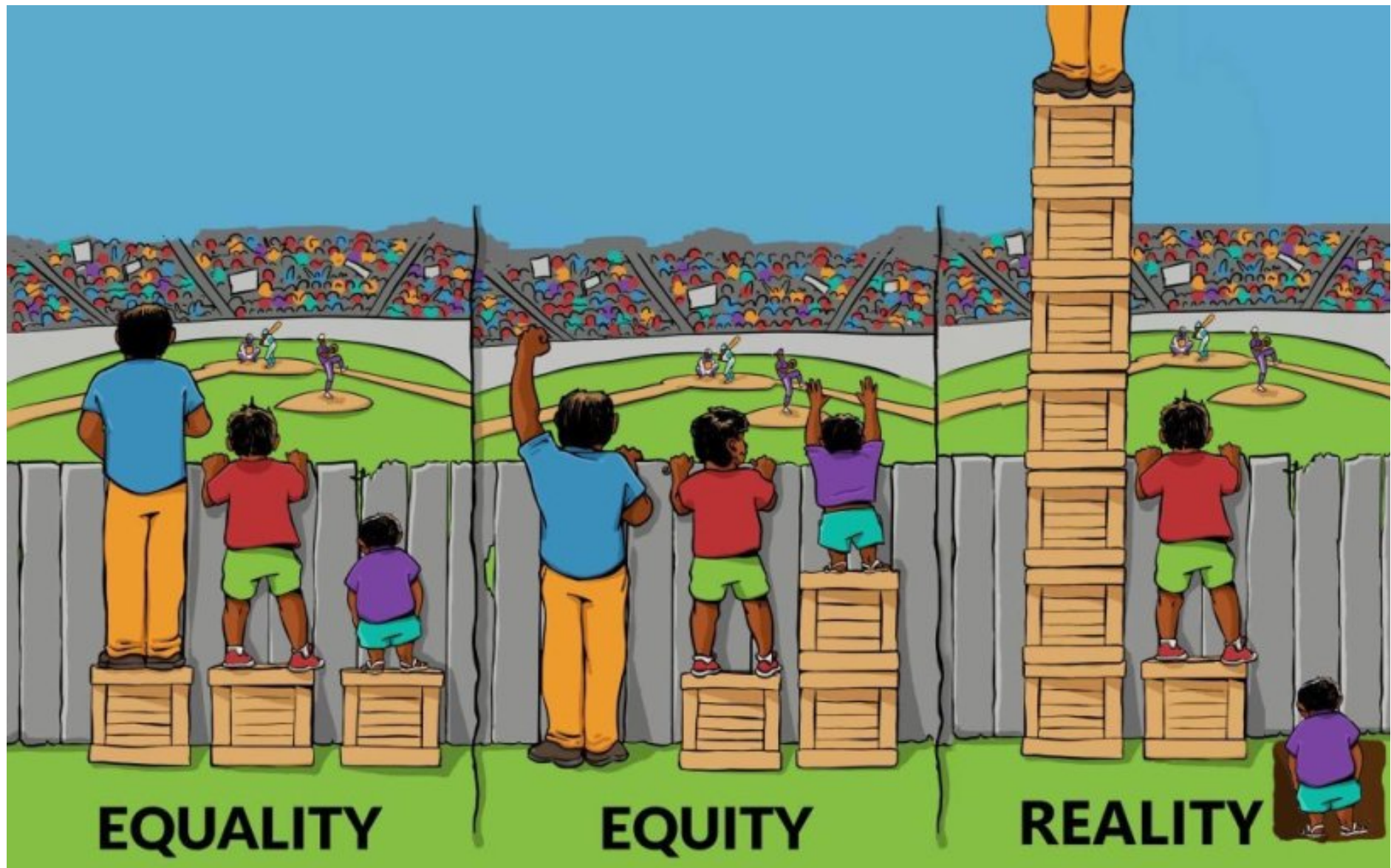
ASJ Women Membership – 110-year history –



Difference between Equality – Equity



Difference between Equality – Equity (2)

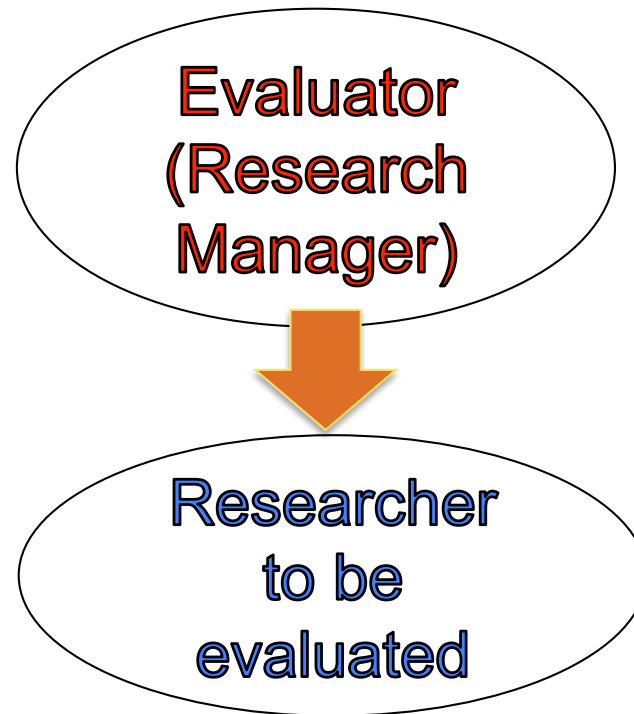


Evidence and Ability of Women – Affirmative Action in Japan –

- Many studies have found that unconscious gender bias creates unfairness in evaluation of women and men researchers
e.g., Dutt *et al.*, Nature Geoscience 9, 805, 2016
- Affirmative action statistics of academic positions reserved for women, collected over ten years at Kyushu University, proved that:
 - Women selected for positions reserved for women were 1.3 times more productive than male colleagues in the same field and twice as productive as women recruited in the traditional way (!)
 - In a 2-step selection process, the second selection step included affirmation of commitment by the department heads to support women who passed the 1st step.
- The affirmation of commitment enabled the women selected to feel secure and concentrate on their research

Fair evaluation gives better results, not only for women but for people of every gender. One step towards equity!

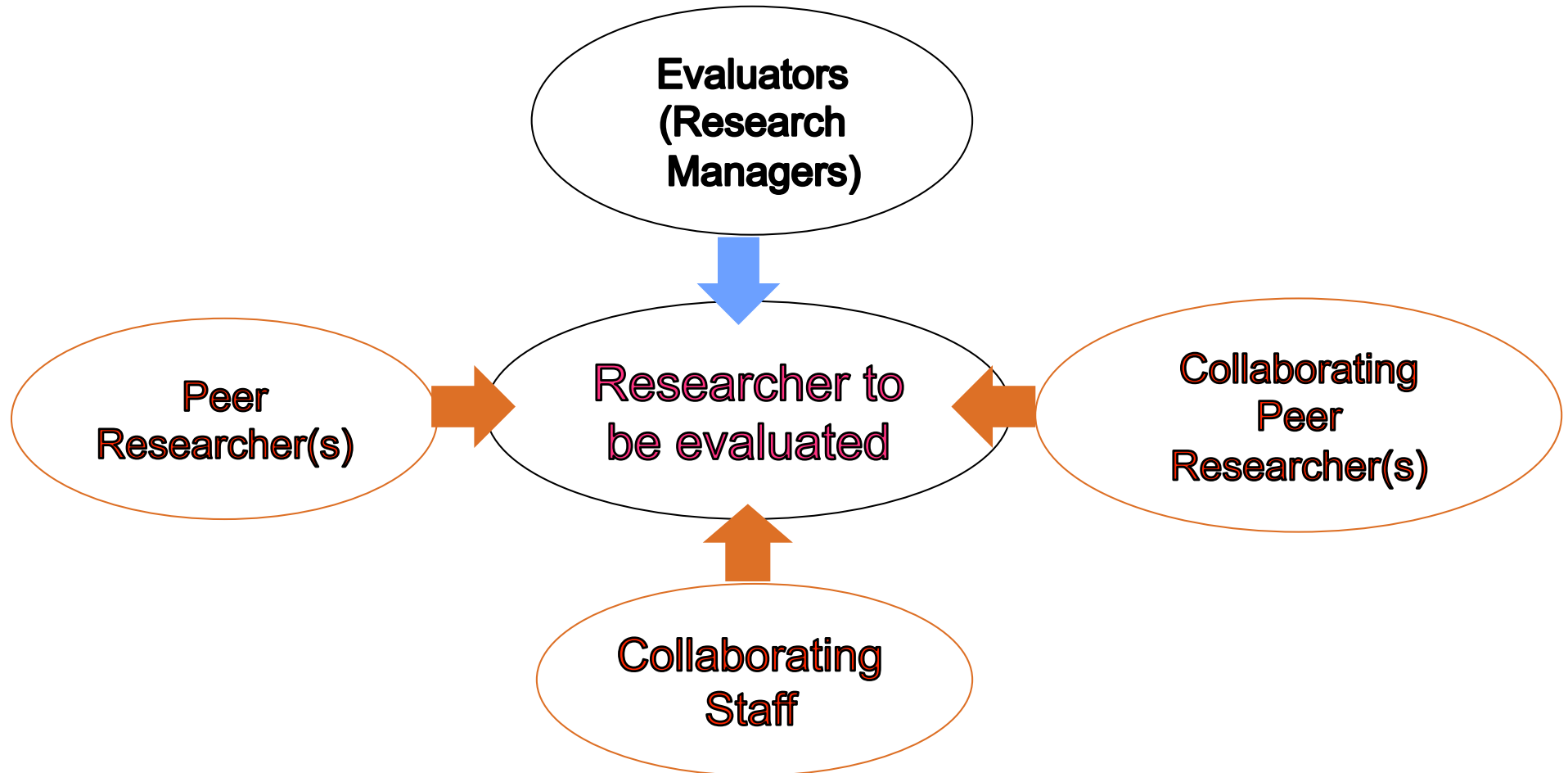
Current Evaluation System in Japan



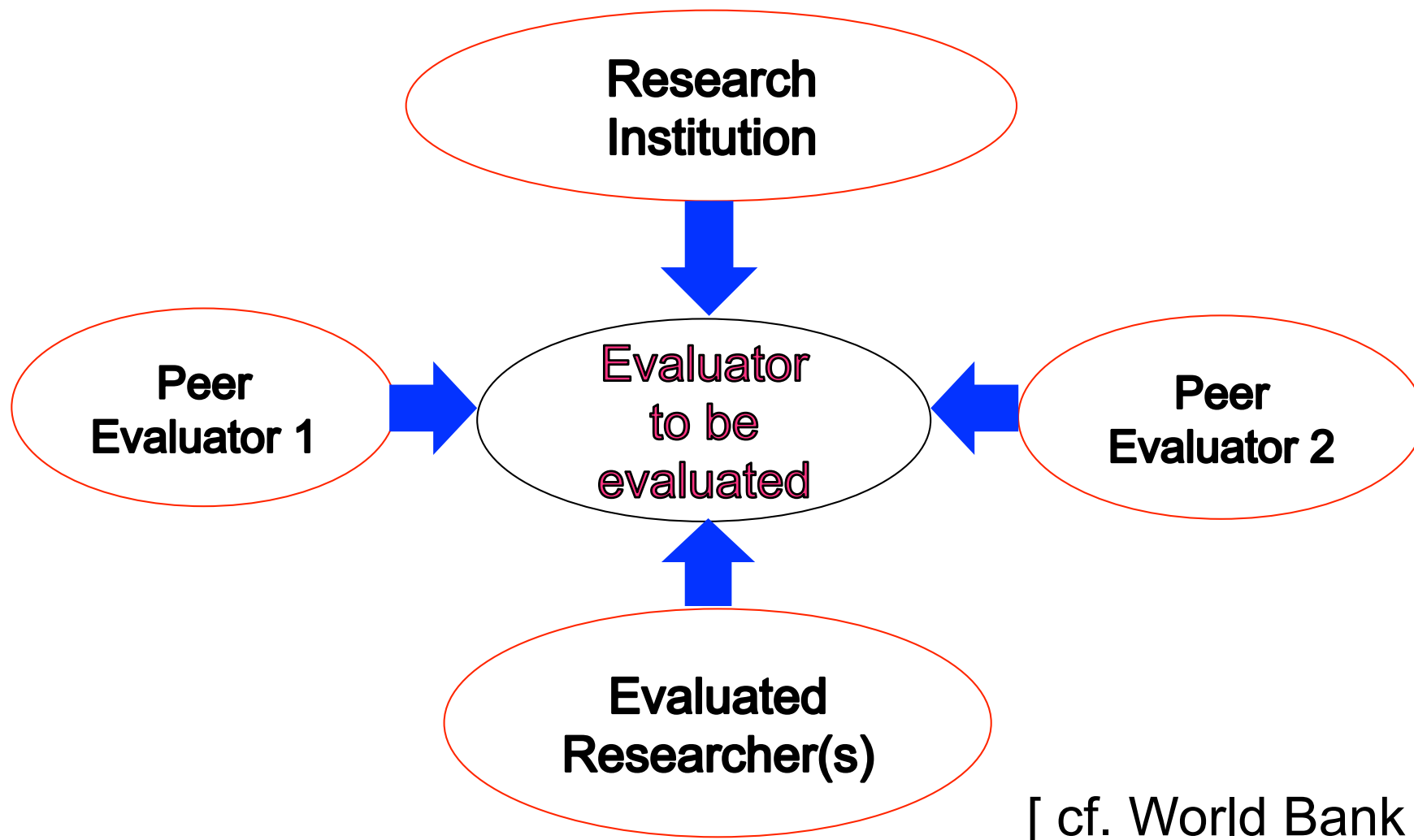
Problems of the current evaluation system:

- **Unconscious bias** – even when evaluators believe their evaluation is fair
- **Closed environment** – can make unhindered harassment facilitate

Proposal for Evaluation of Japanese Researchers



Proposal for Evaluating Japanese Evaluators



[cf. World Bank]

Women in Decision-Making

Indicator: % Female and % Male Full and Associate professors

USA: < 25 % (tentative value in 2019 for faculty members in astronomy departments as reported by AIP)

Selected statistics for East Asia:

Japan: 1.5-2.0% >15%

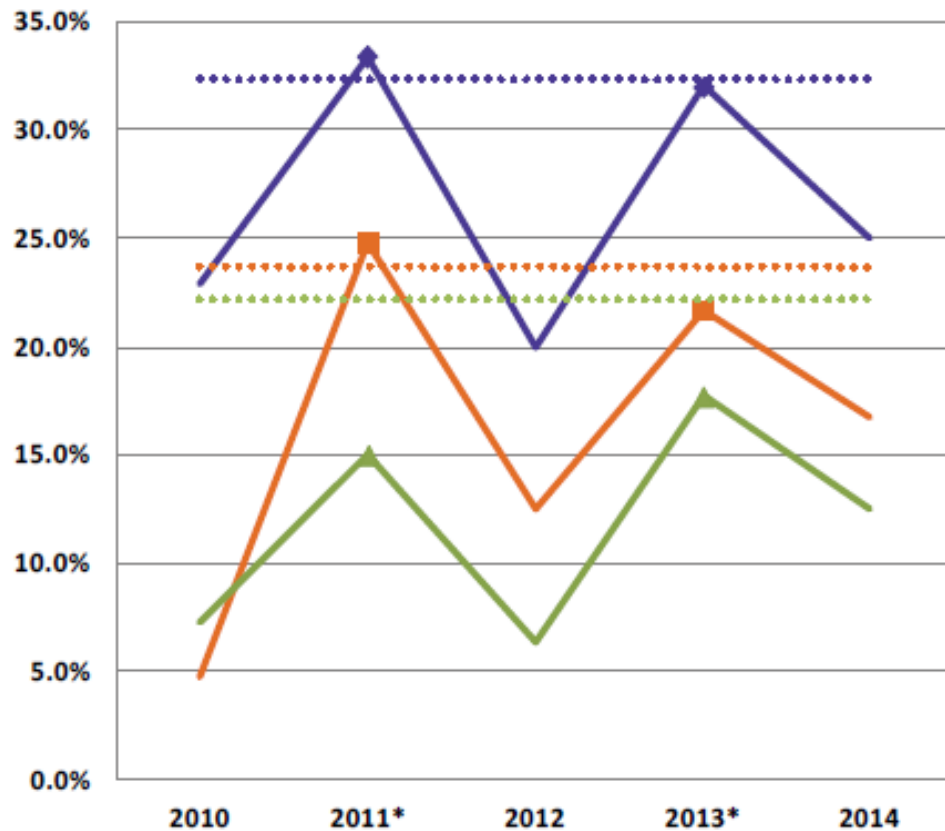
Korea: 2.0% 14%

Taiwan: 3.7% 19%

- In the above areas women in decision-making in astronomical societies are **7 – 5 times less effective** than men
- The critical mass for a minority to influence the majority is known in social science to be 30–15% of the population
- It was difficult to collect the above statistics globally
- Recommendation: IAU adopt the indicator above

Conscious Effort Must Not Be Stopped!

Example of Bias in Action:
Female prize-winners in academic societies



* Award cycle following intervention

- Change requires a conscious effort by leaders of academic societies
- When conscious efforts were stopped, the situation reverted to the previous situation (!)

—◆— % Women Biological and Life Sciences Scholarly Awards
—◆— % Women Biological and Life Sciences Tenure Track Faculty
—■— % Women Mathematical Sciences Scholarly Awards
—◆— % Women Mathematical Sciences Tenure Track Faculty
—▲— % Women Physical Sciences Scholarly Awards
—◆— % Women Physical Sciences Tenure Track Faculty

Source: AWIS #02 in AWIS AWARDS Series (www.awis.org)

Bullying and Harassment

- “Light troubles speak; the weighty are struck dumb”
 - Seneca, philosopher, the Roman Empire
- ASJ: sexual harassment reported **~40% of female members** (Kato & Ikeuchi, 2009) and harassment reported **44 % of female** and **25% of male members** (2019, report by Gender Equality Committee, ASJ).
- Still we have serious cases as those in 20 years ago
 - even increasing?
- Men are also affected by harassment
 - 25% of men in ASJ reported receiving harassment (report by GEC, ASJ, 2019)
 - the case occurred at the Max-Planck Institute in 2018

Bullying and Harassment (2)

- Difficulties in scientific life of a female scientist in Japan can be learned from a “#MeToo” article (probably the first article in academia in Japan) written by Prof. Mariko Kato (Web RONZA, 2018)
- How one can attain **Post-Traumatic Growth** ⇔ PTSD
 - “Epiphany” experience in science
 - **Belief in one’s own research**
 - To give strong support to her/himself in difficult days
- **“That which does not kill us, makes us stronger”**
- A webpage for measures to cope with academic harassment: <http://ribf.riken.jp/ag/motizuki/measures.html> (in Japanese)
- **“Courage is contagious”**
#MeToo(わたしも) #WeToo(わたしたちだって) #WithYou(あなたとともに)

Some Keys Not To Be Affected By Harassment If You Are Suffered Now

“I am fighting within myself”
– a key for not falling in the “dark side”

“I go back home today with flowers for myself”
– to avoid mental depression



Suggestions by Prof. Kaifu for Improvements in Japan (and Other Countries) (Jan., 2017)

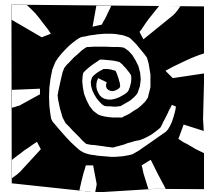


1. Regular statistical surveys including women members of ASJ
2. Questionnaires for women members of ASJ about barriers in research careers
3. Questionnaires for universities/institutes
 - employment of female researchers/staff
 - Discussion on barriers by Science Council of Japan
4. Declaration of intent of SCJ and ASJ to increase number of women researchers

How Women Astronomers Can Be Empowered

We need:

- Increased %age of women leaders and their participation in decision making
- Fairer evaluation of all researchers and evaluators (at least in Japan) – unconscious bias and practice in other countries?
- Diversity – key to being more productive
- To recognize that *all* astronomers are in a minority in societies
- More empathy training
- Networking with like-minded researchers in our field and other research fields
- To learn best practice from **women and men** in different fields
- To **develop our professional and personal integrity together**
– all of us of every gender!



Thank you for your attention!