Forest Carbon Partnership Facility

4b. Emerging questions on ER-PD development - Improving uncertainty of RLs

Seventeenth Meeting of the Carbon Fund (CF17)
Paris, France
January 29 – February 1, 2018

Process so far and Background

- **CF14**
  - Proposal for guidance on updates to RLs after ERPA signature was presented and discussed;
  - **The guidance was not adopted**.
- **CF16**
  - FMT presented a compilation of information on uncertainty in Activity Data from ER programs;
  - Main messages were:
    - Uncertainty of activity data is **critical to measure performance**;
    - ER programs have presented activity data with **large uncertainties**;
    - Main reason is the **lack of experience and guidance** in the application of new approaches (sampling for AD);
    - ER programs might **not be able to measure performance**;

Process so far and Background

- **CF16**
  - Main messages were:
    - The impossibility to improve uncertainty of RLs would **constraint** the possibility of **improving the uncertainty of ERs**;
    - This would **disable the incentive** generated by the uncertainty buffer mechanism;
    - FMT is working closely with the GFOI to deliver guidance to Countries. Expected for beginning of 2018.
  - CFPs indicated during CF16 that they shared the concern raised and that they were open **to explore potential solutions for this issue**.
- **10 January -** Phone call was held with CFPs and Observers to discuss the issue.

Issues for discussion at CF17

- The FMT has shared an FMT note with information on gaps/needs of ER programs, different scenarios of improvement in uncertainty of RLs (not only AD)
- This presentation provides a very short overview of the issue, and **provides additional information** that was requested at the phone call of 10 January.
- We would appreciate your thoughtful input on the questions (?) that will be presented in the next slides

Scope of changes to RL

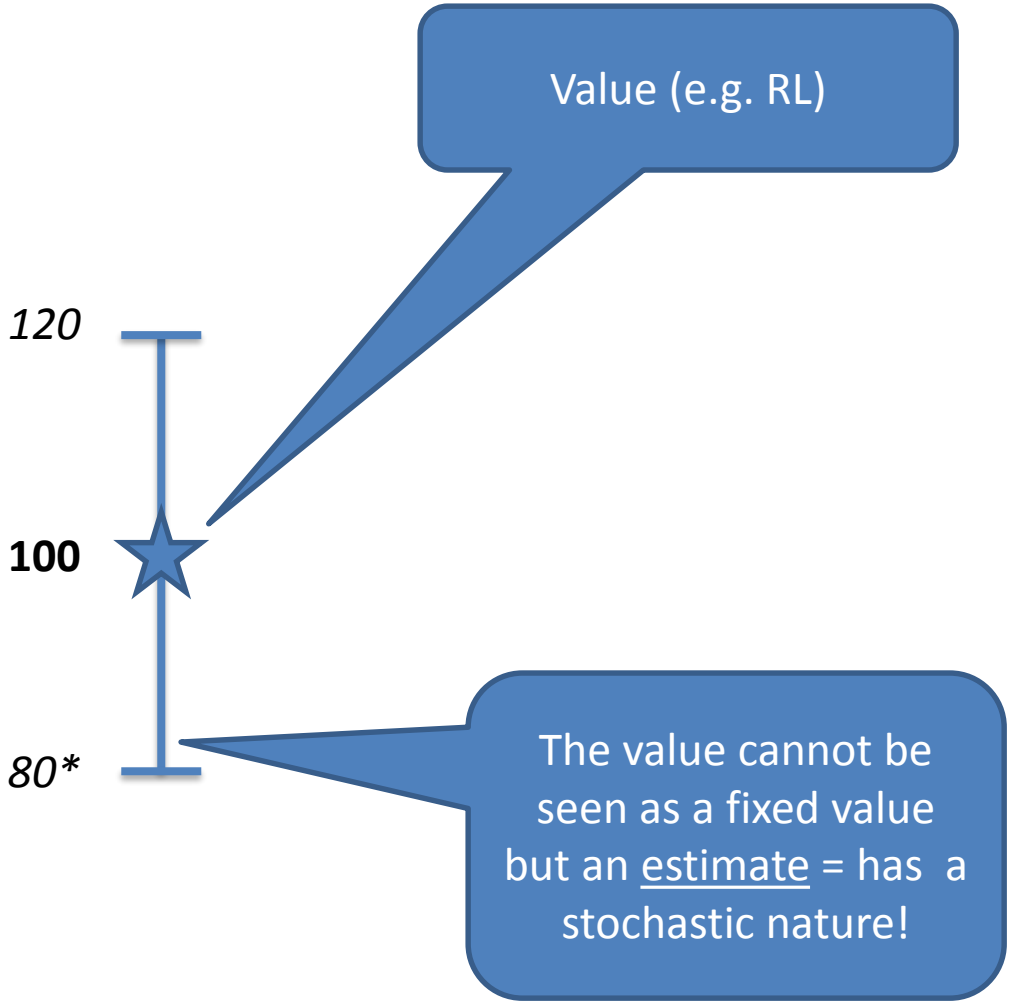
- We may identify two different types of “changes” to RLs, those related to policy decisions or technical decisions

Policy decisions	Technical decisions
• REDD+ activities included • Carbon pools included • Gases included • Reference period of the RL • Forest definition • Definition of REDD+ activities • Other definitions • Adjustments	• IPCC Approach (e.g. Approach 2, Approach 3 sampling or wall-to-wall) • IPCC Tier (e.g. quality of data, such as representativeness of the data) • Methods • Sampling design (e.g. inventories for emission factors or area estimation)

- **Only technical decisions intended to improve the uncertainty of the RL** are considered by the current phone call;

- *Ergo*, the main **objective is not the update to the RL**, but the improvement of uncertainty of the RL and ERs.

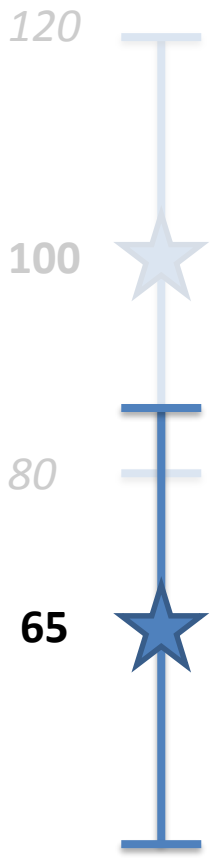
Why uncertainty is so important?



**ER programs present values over 20% at 90% for AD*

Why uncertainty is so important?

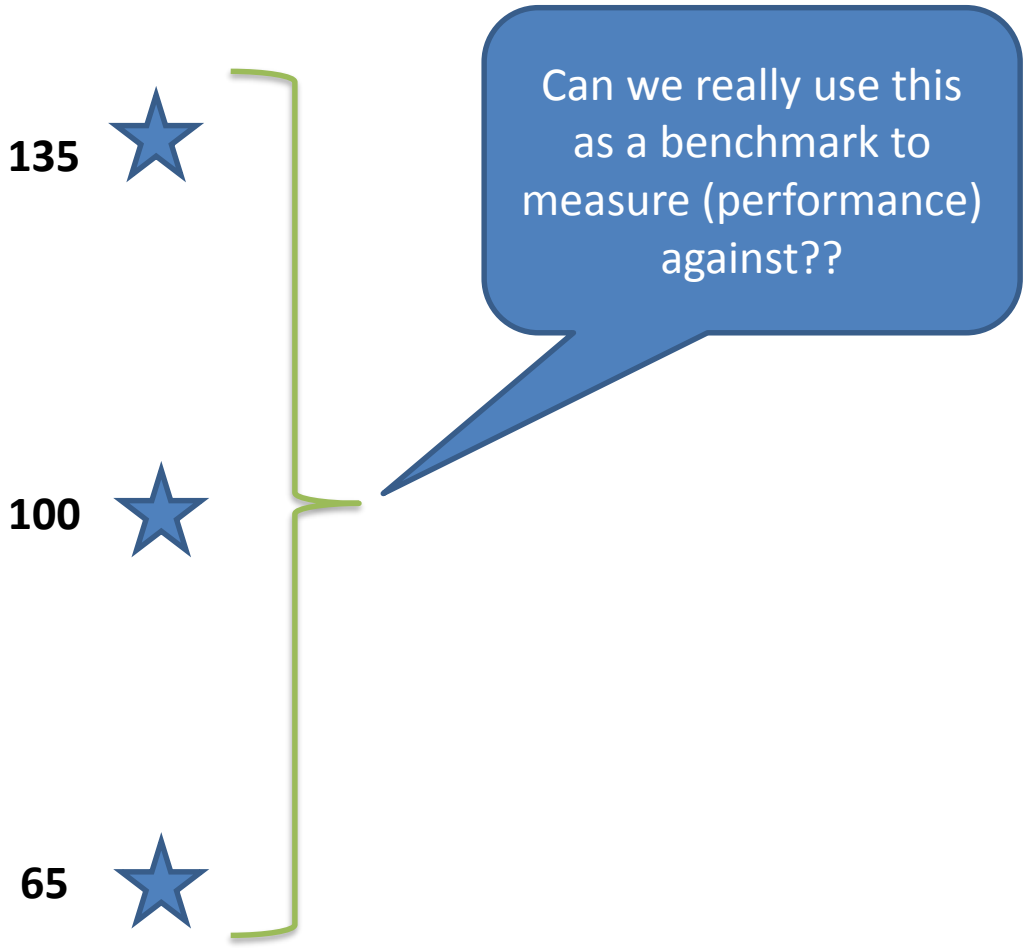
Stochastic = If we repeat the process following the same design, 90% chances that we get this one!...



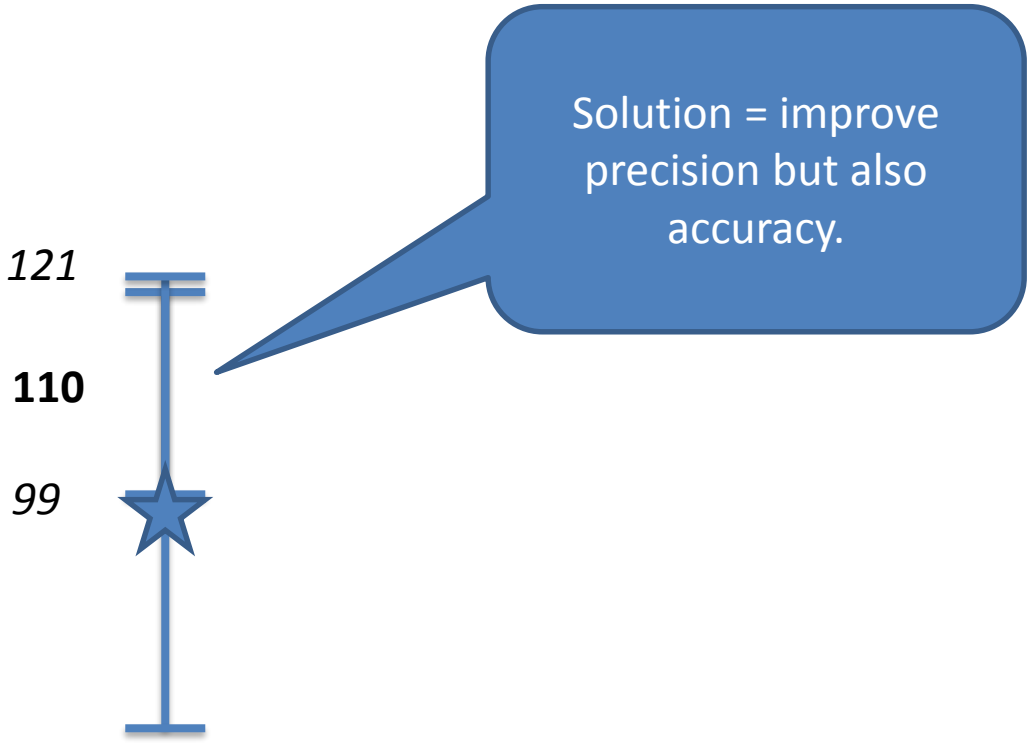
Why uncertainty is so important?

…Or this one!

Why uncertainty is so important?



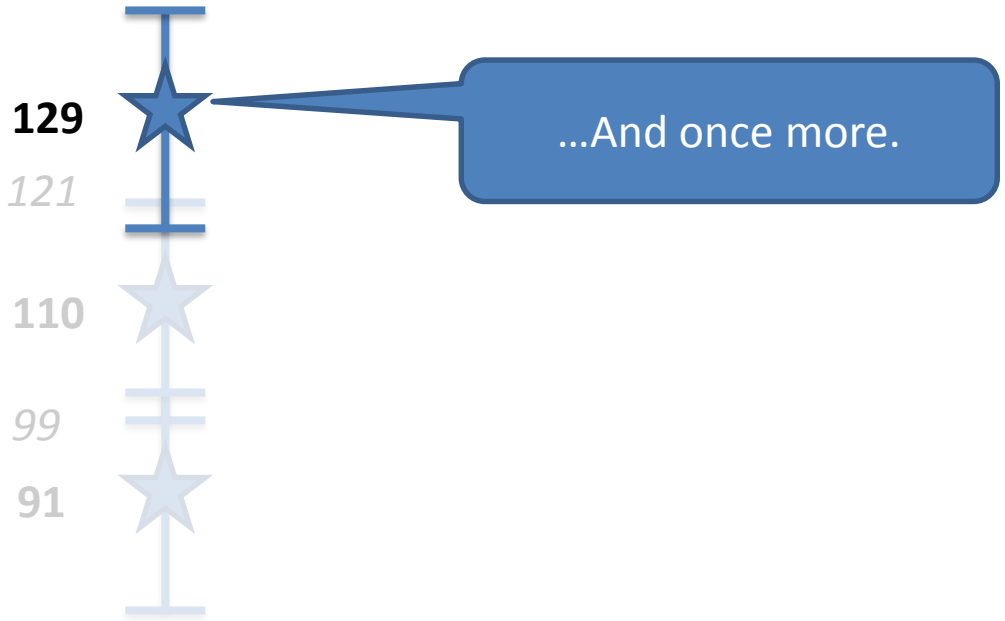
Why uncertainty is so important?



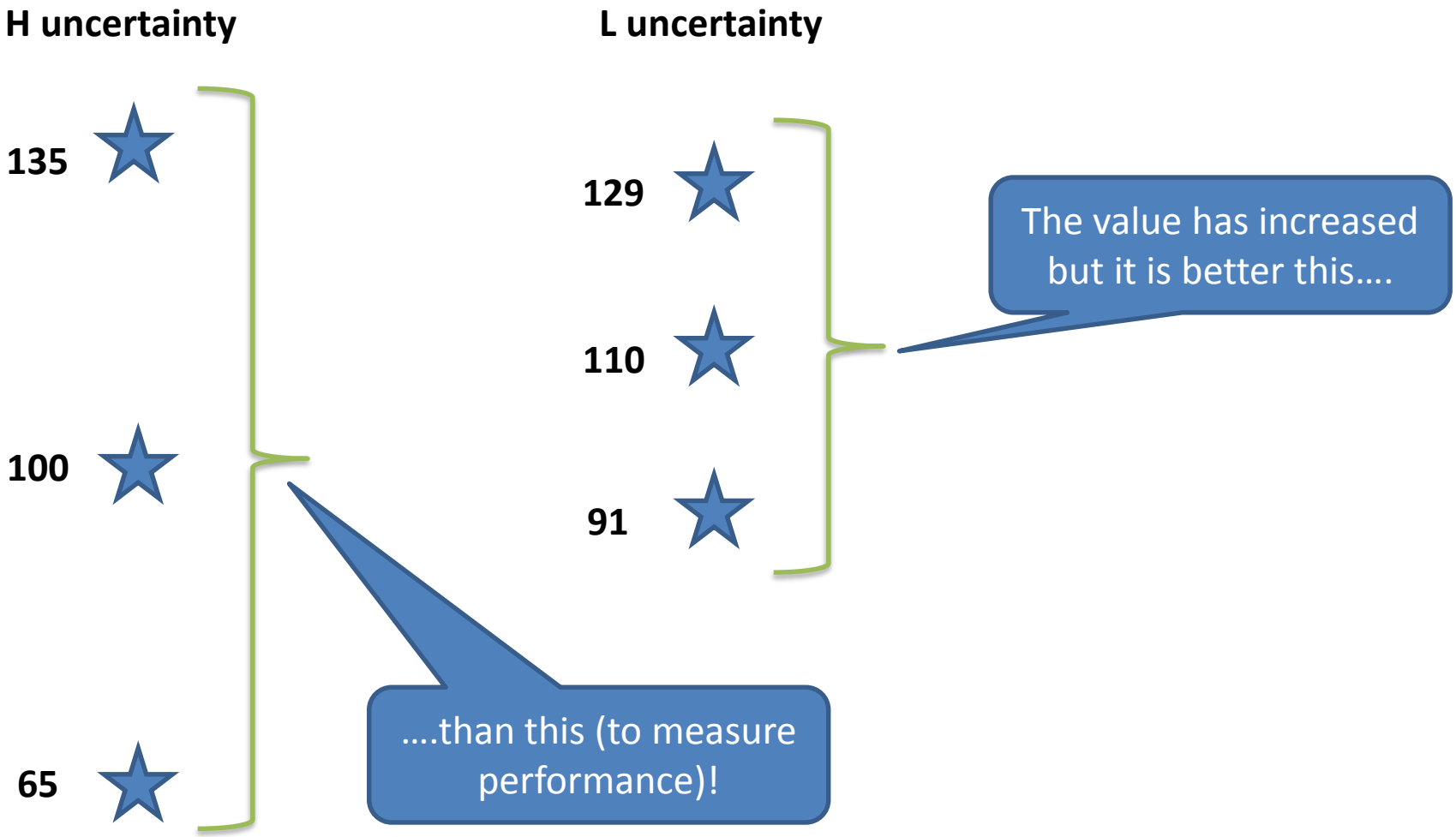
Why uncertainty is so important?

We repeat the same (improved) process once more…

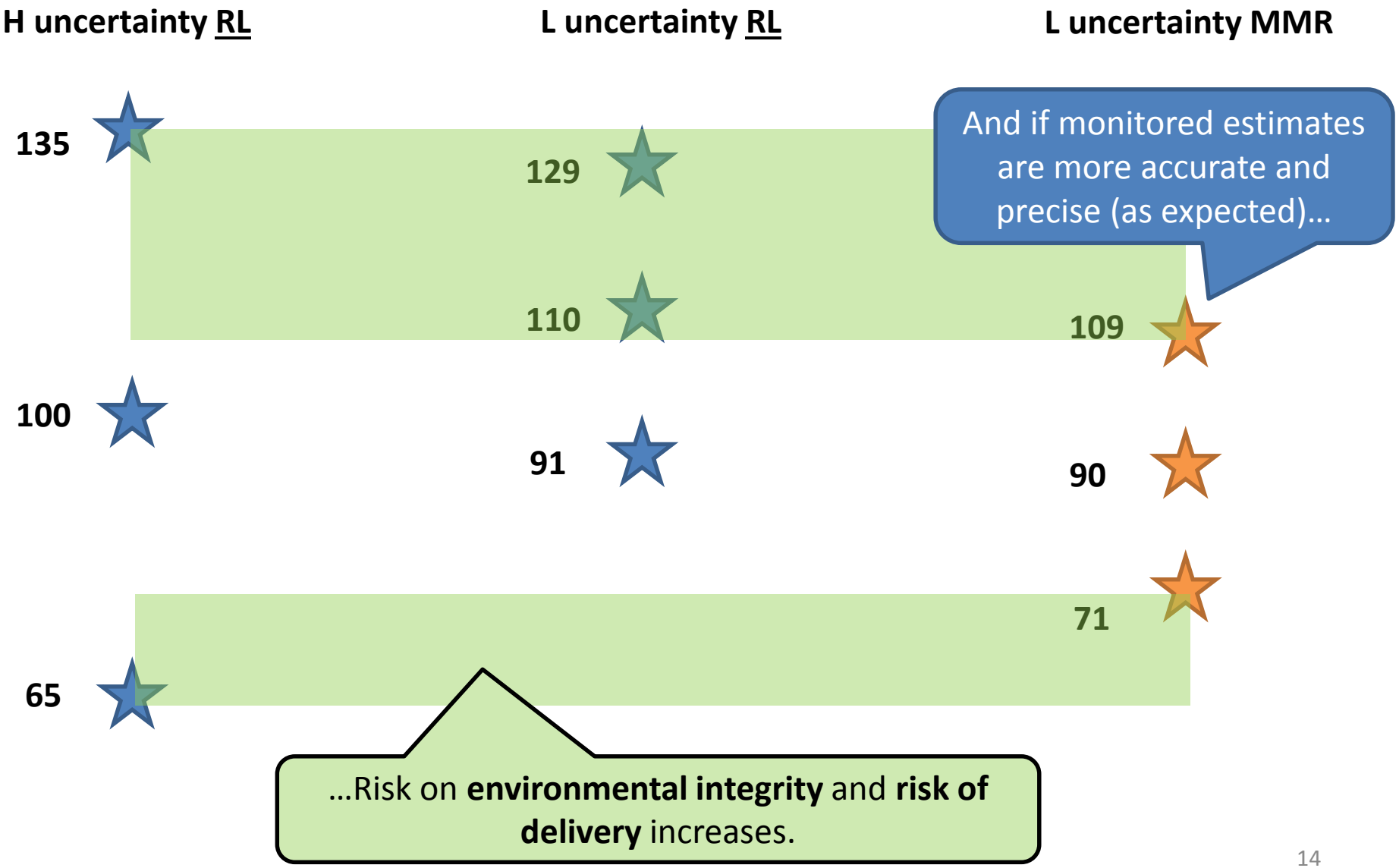
Why uncertainty is so important?



Why uncertainty is so important?

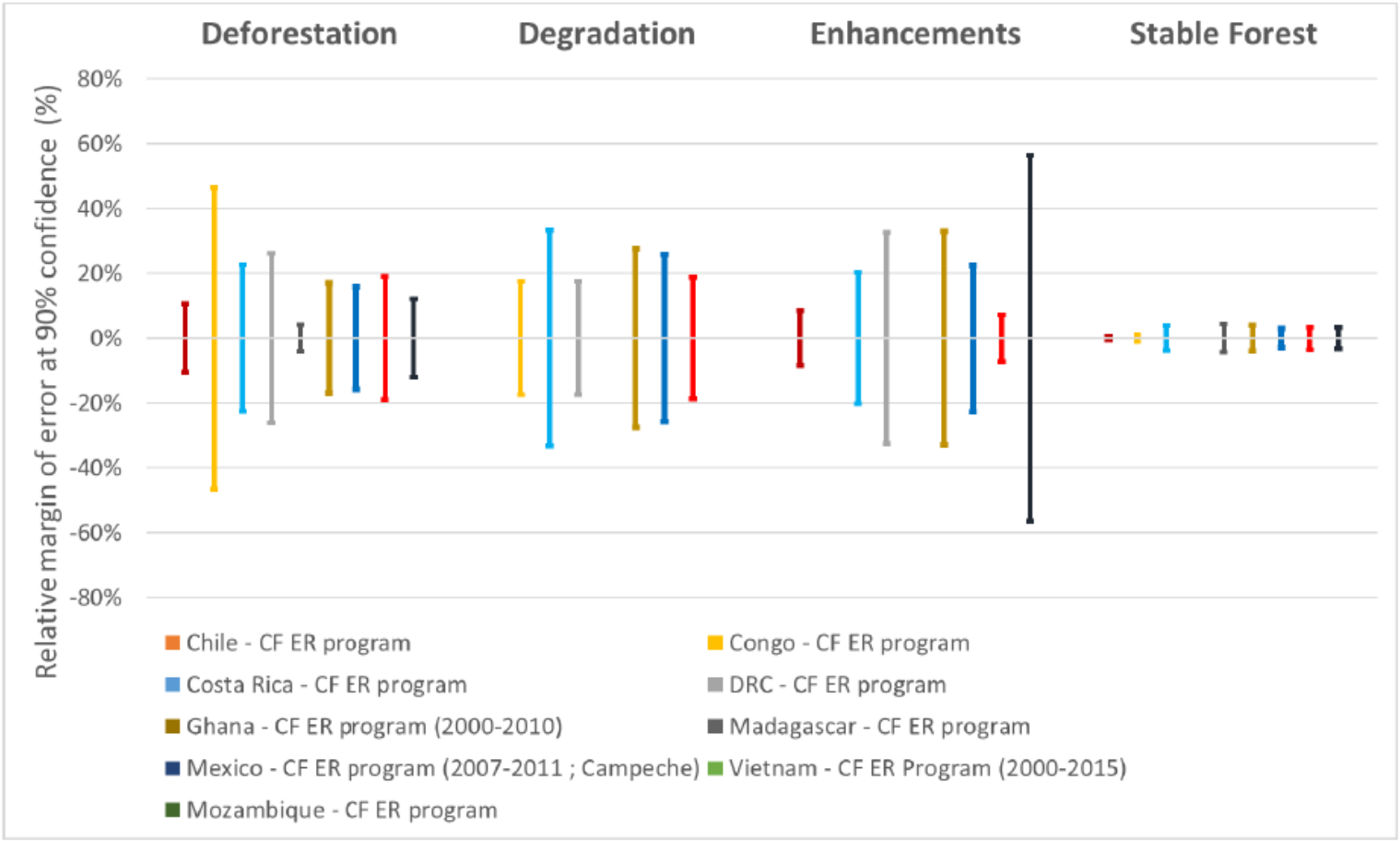


Why uncertainty is so important?



Current situation in the portfolio

- **What are the current gaps?**
  - Countries have presented **AD with low precision** > 20% at 90%



Current situation in the portfolio

- **What are the current gaps?**
  - Countries have presented **AD with low precision**
  - But also, countries have presented is some cases **AD with low accuracy**, e.g. classification of degradation, no use of unbiased estimators
  - Countries have used in some cases **EFs with low accuracy,** e.g. Tier 1 or not representative values
  - Countries have used in some cases **non reliable quantification methods**, e.g. forest degradation using proxies
- **What are the current opportunities?**
  - New guidance for AD estimation is emerging (GFOI);
  - New sources of medium, high and very high resolution imagery are becoming available (Aster, SPOT, Digital Globe);
  - New data and methods are becoming available.

Possible scenarios of improvement in uncertainty

The FMT described the following **four scenarios** for improvements in accuracy and precision:

1. Improvement in the **precision of Activity Data:** improving stratification, increasing sampling intensity, improving sampling methods

2. Improvement in the **accuracy and precision of Activity Data:** using new sources of reference data (Digital globe, Aster, SPOT), or replacing maps by sampling…

3. Improvement in the **accuracy and/or precision of Emission and Removal Factors:** using more representative emission factors (Tier 2)

4. Improvement in the accuracy of GHG emissions by **employing new methods**: Replace proxies for forest degradation,…

Possible impacts of each scenario

Improvement	Magnitude of change of value of RL?	Improved capability to measure performance?	Reduced uncertainty of ERs?
1. Precision AD	+	++	++
2. Precision / Accuracy of AD	++	+++	+++
3. Precision / Accuracy of EF	++	-	+
3. Accuracy, improved methods	?	?	?

Potential application of scenarios

Country	Scenario 1	Scenario 2	Scenario 3	Scenario 4
DRC	✓	✓	✓	
Costa Rica*		✓	✓	
Chile		✓	✓	
Mexico*	✓	✓		
Vietnam	✓			
Congo	✓	✓		
Ghana*		✓		✓
Mozambique			✓	
Madagascar	✓	✓		
Nepal		✓		

*Prior to ERPA signature

Implications to Portfolio

- **Implications to portfolio** management:
  - Improvement on capability to measure performance → **reduces the risk of delivery and risk to environmental integrity**
  - Reduction in number of ERs allocated to the **uncertainty buffer** → **reduced risk of delivery**, c.f. presentation **3a**.
  - Improved predictions of portfolio simulations and delivery risk assessment
  - **Environmental integrity issues** if improvement of uncertainty is only applied where it enhances ER generation
  - **Practical issues** for portfolio management as it would require a process in place to assess these improvements (mainly in Scenario 4)

Implications to ERPAs

- Two scenarios if RL's uncertainty is improved prior to first verification:
  1. Increase in expected ER program delivery
     - Reduction of delivery risk
     - Call option available for additional ER payments
     - Seller may request ERPA amendment to increase volume
  2. Decrease in expected ER program delivery
     - Increase of delivery risk
     - Buyer may request ERPA amendment to reduce volume

- **Consequence** → ERPAs may include a section indicating that in the event of improvements on RL's uncertainty, prior to first verification, lead to a change to ER volume estimate by more than ±**x%** (to be defined), Seller and Buyer would enter into good faith negotiations to adjust the volume accordingly.

Options

Question: What options we have?

- **Option A**: Status quo. This will be assessed on a case by case basis.
- **Option B**: Provide guidance to countries to improve the uncertainty of their RLs **for any or a combination** of the four options.

If Option B, the FMT has proposed in the FMT note 2018-01 a number of possible conditions to be included in this guidance.

Thank you!

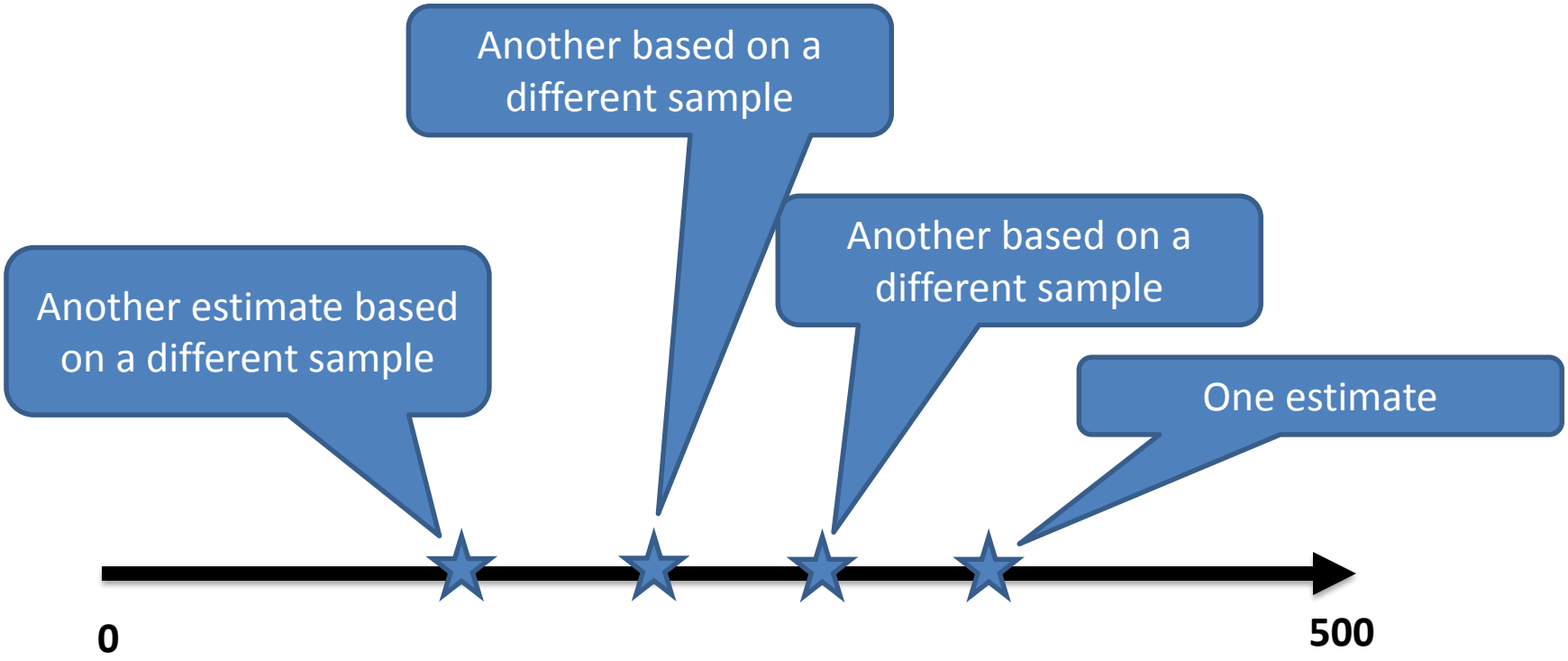
Annex - Uncertainty

- Uncertainty = **Lack of knowledge of the true value of a variable** (e.g., reductions in emissions)
- We may identify two components:
  - **Bias or systematic error (lack of accuracy) occurs**, e.g., due to flaws in the measurements or sampling methods or due to use of an EF that is not suitable or not representative;
  - **Random error (lack of precision)** is a random variation above or below a mean value. It cannot be fully avoided but can be reduced by, for example, increasing the sample size.
- To show these concepts, let's look at an example…

Annex - Uncertainty

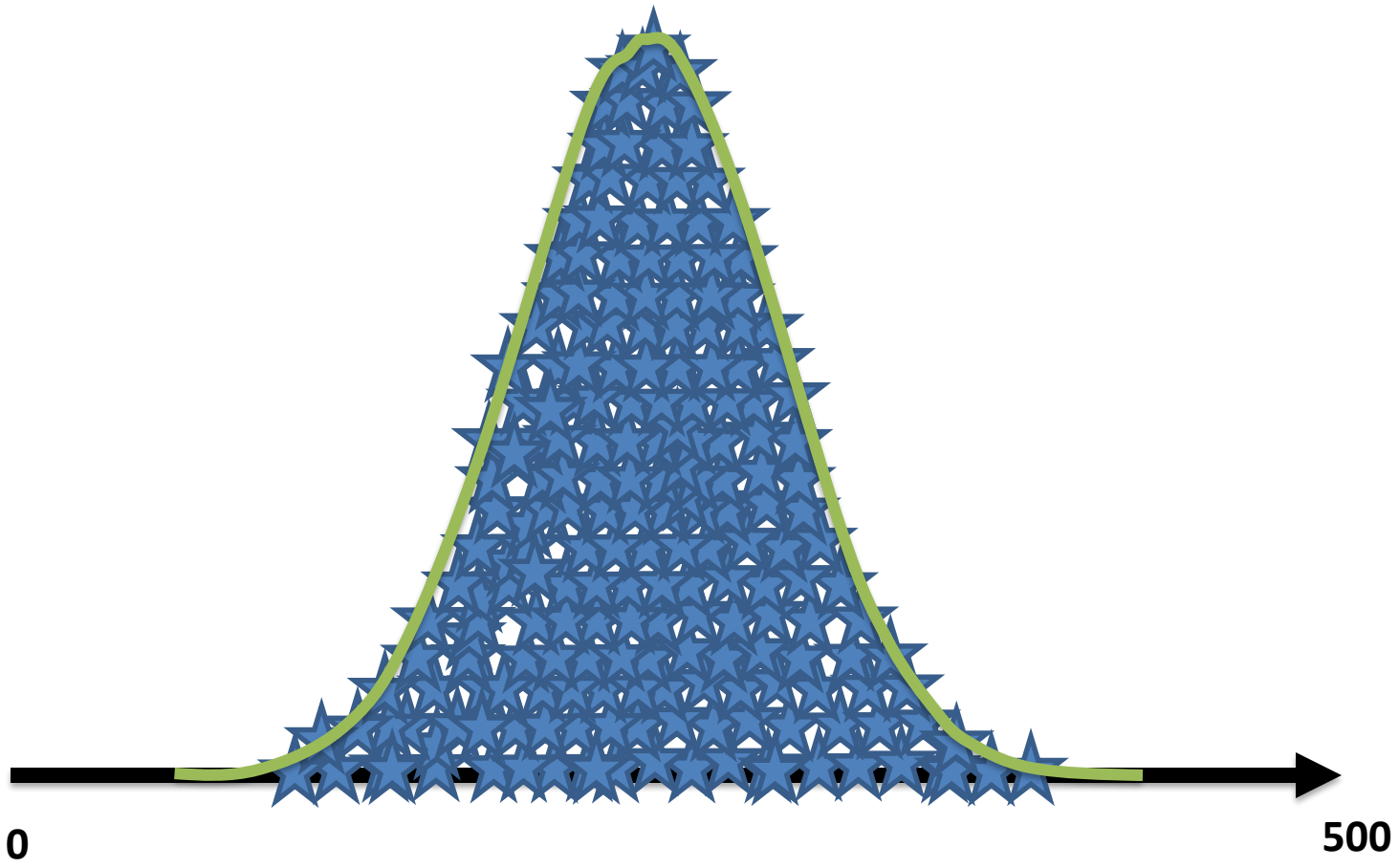
Let's assume that a variable is estimated through **sampling** and we can repeat the same sampling design **many times**…

….every time we draw a sample (set of units) **we get a different value**..

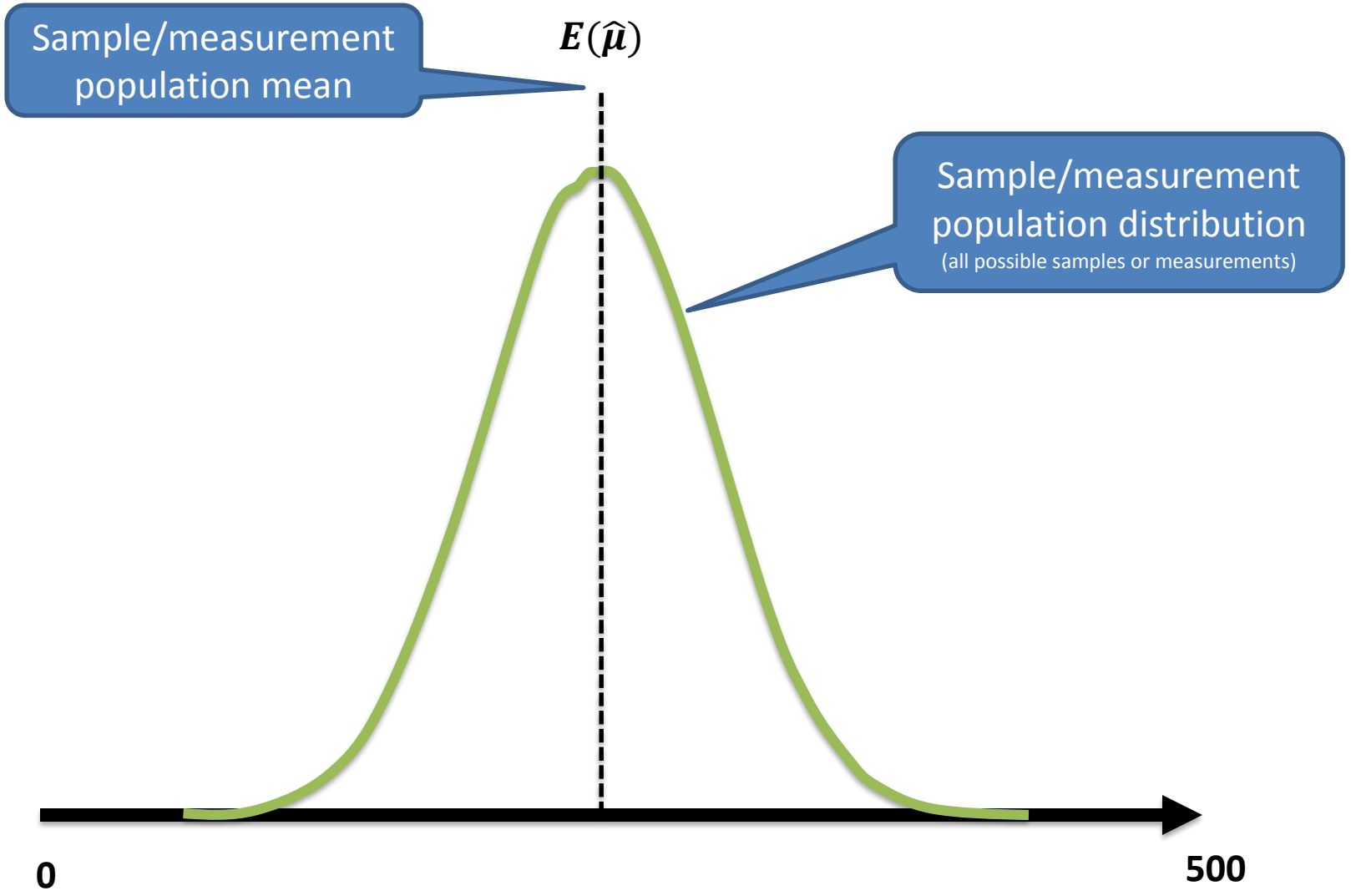


Annex - Uncertainty

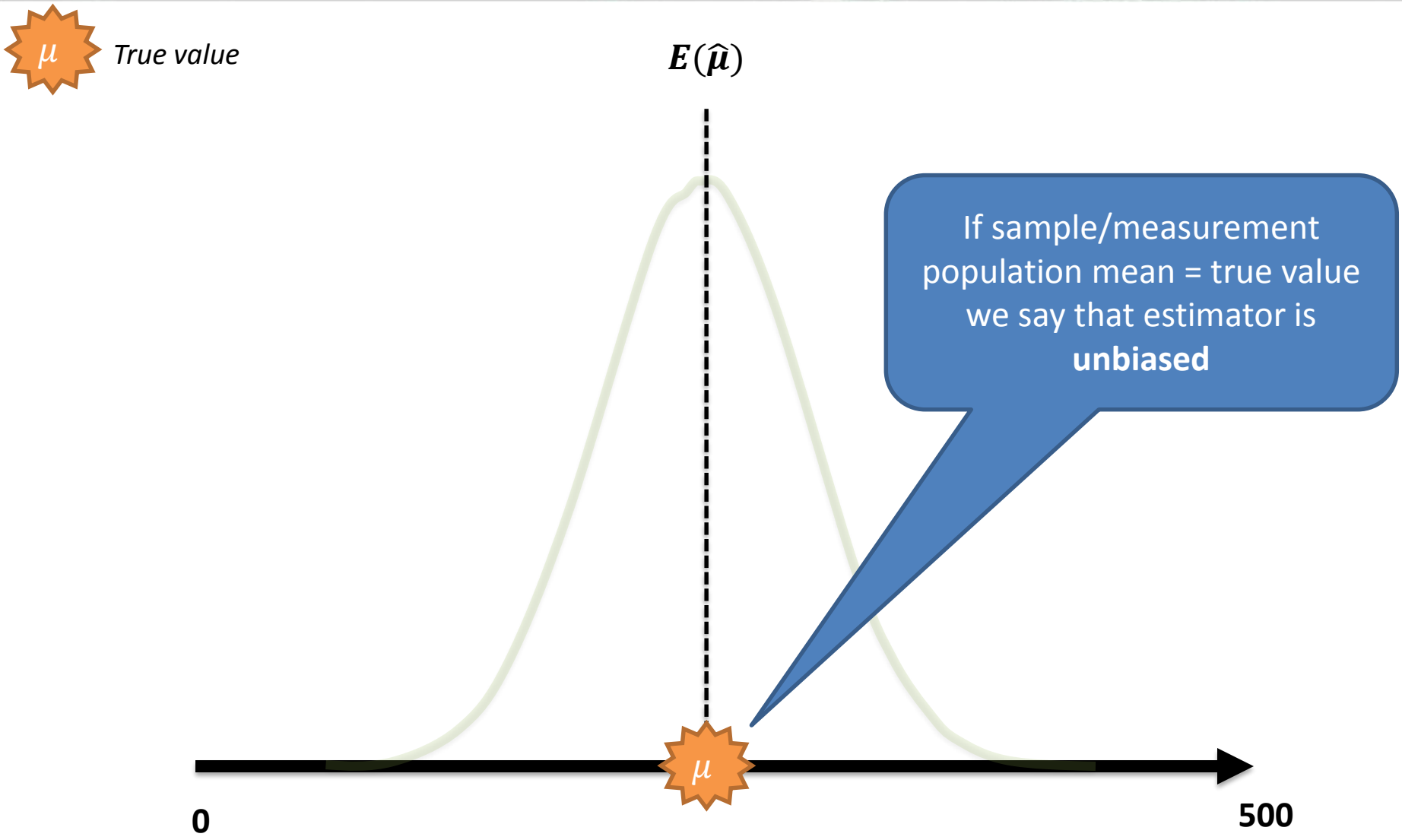
Now we repeat this many, many times….



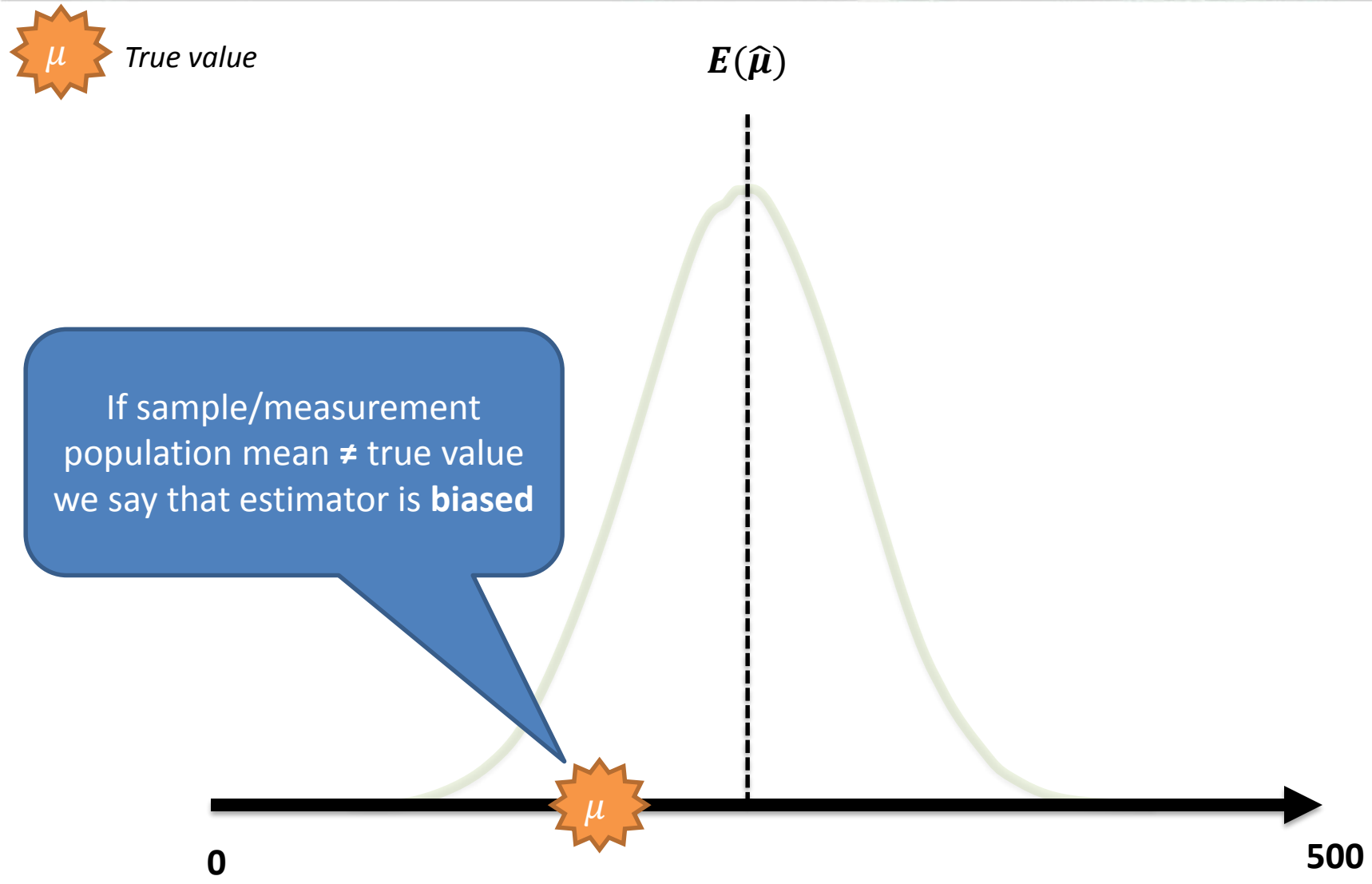
Annex - Uncertainty



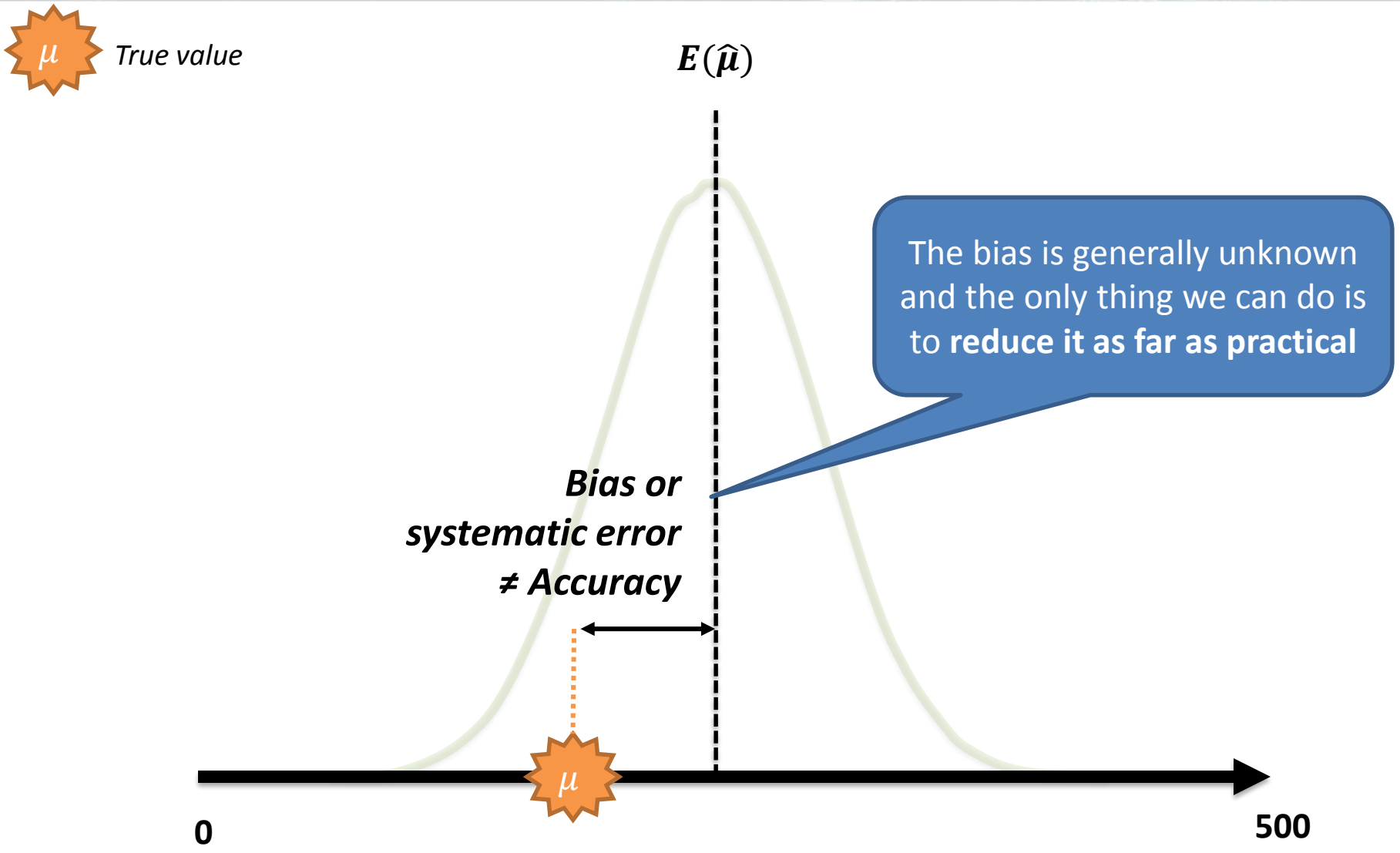
Annex - Uncertainty



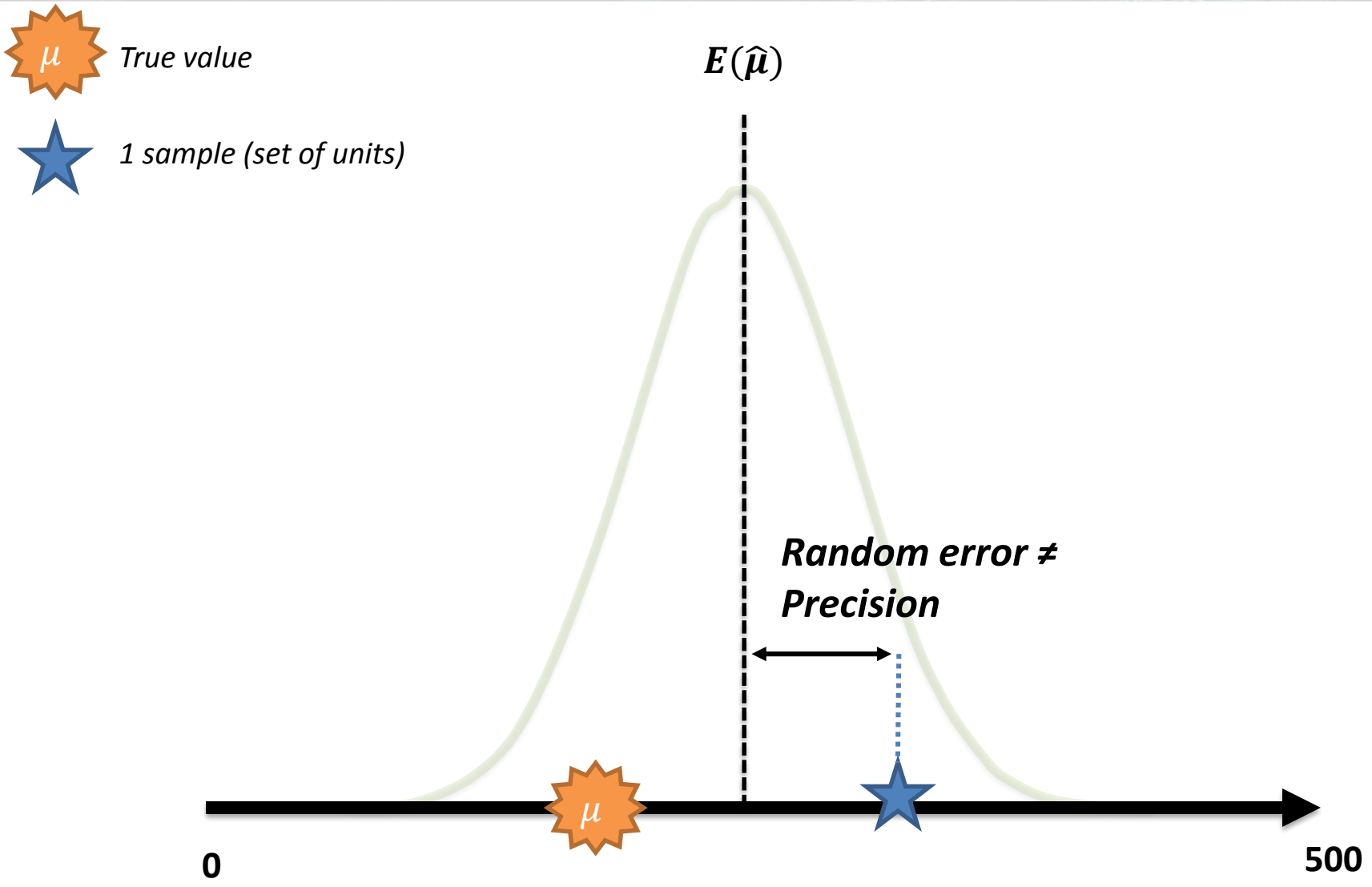
Annex - Uncertainty



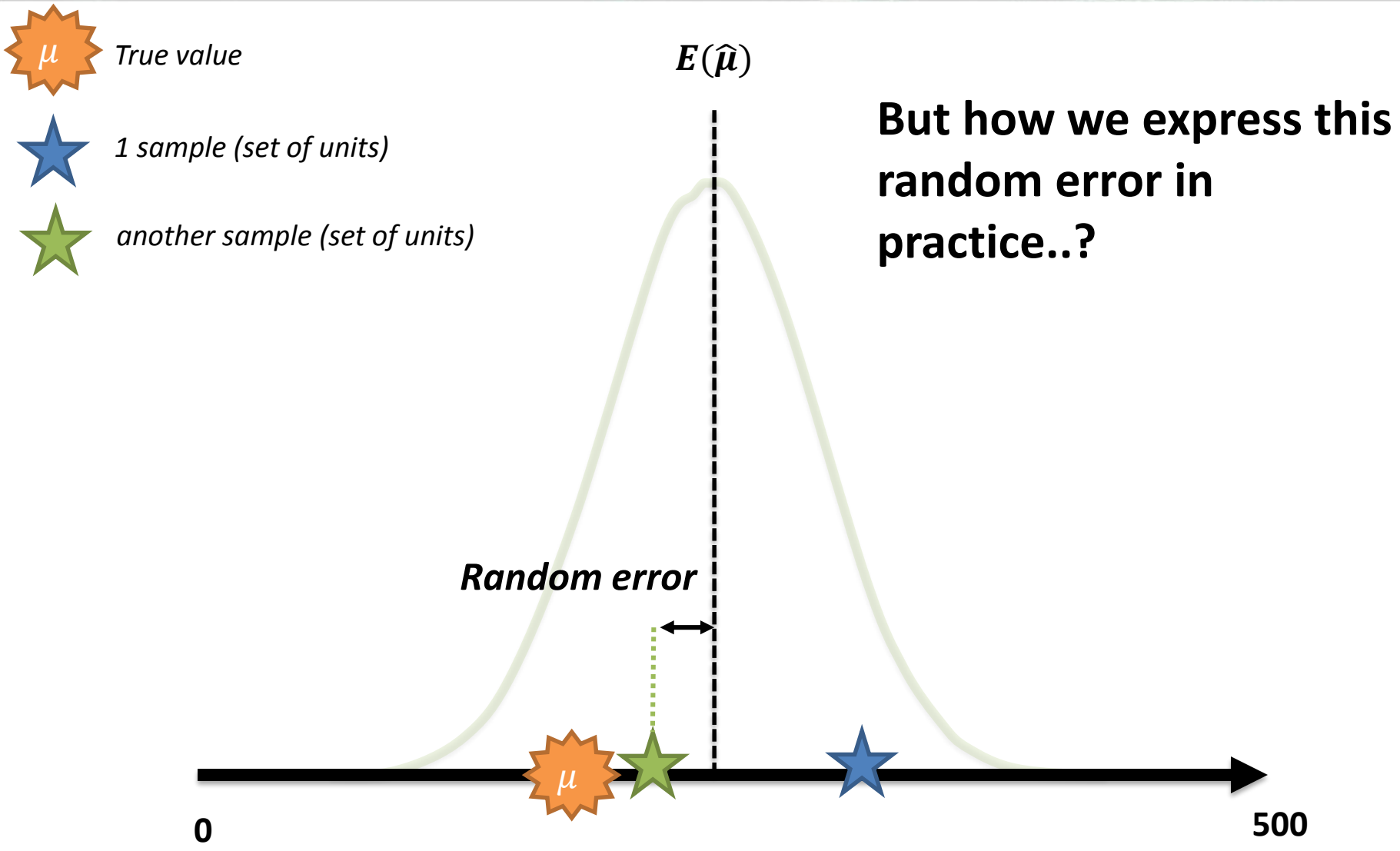
Annex - Uncertainty



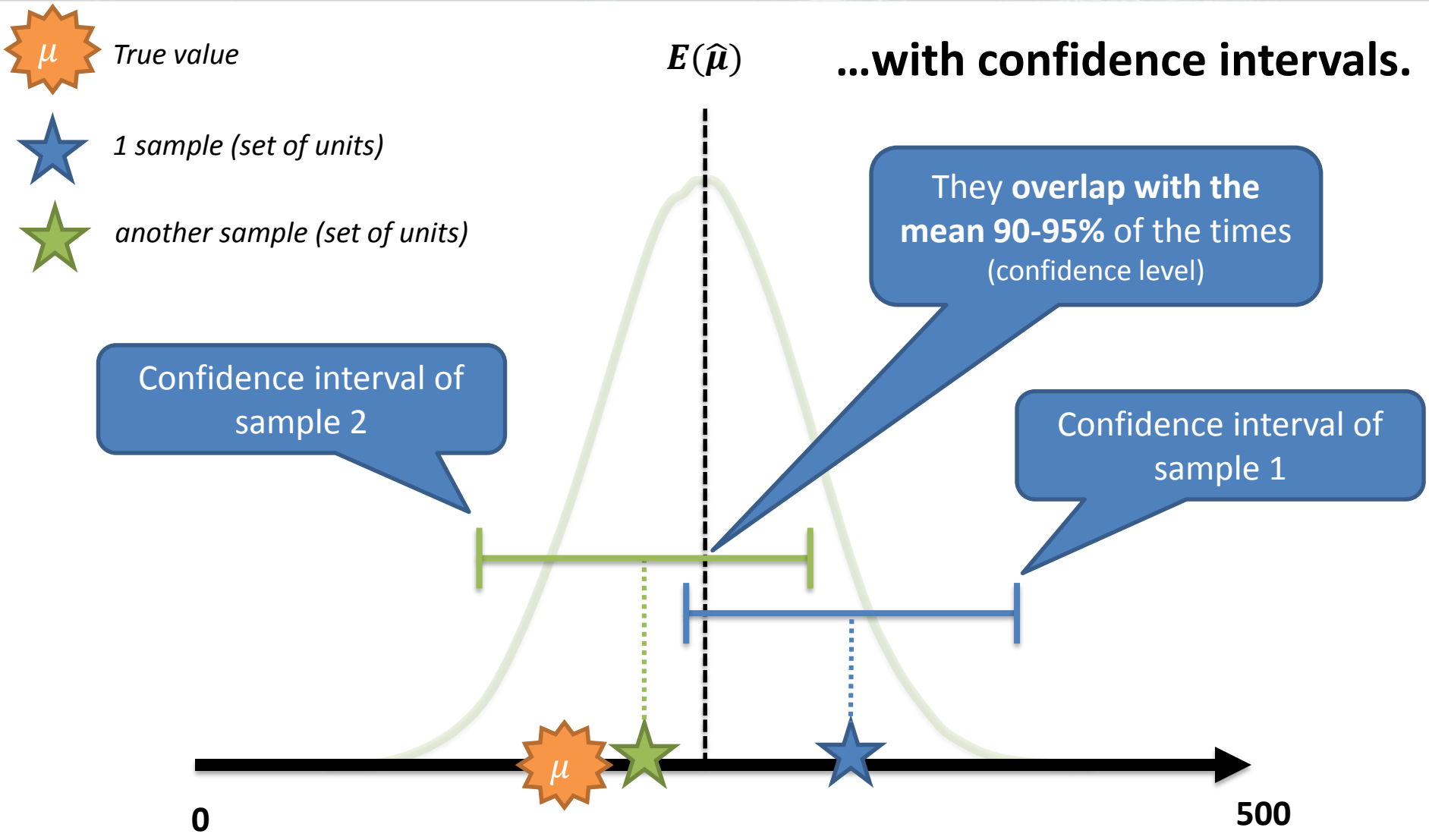
Annex - Uncertainty



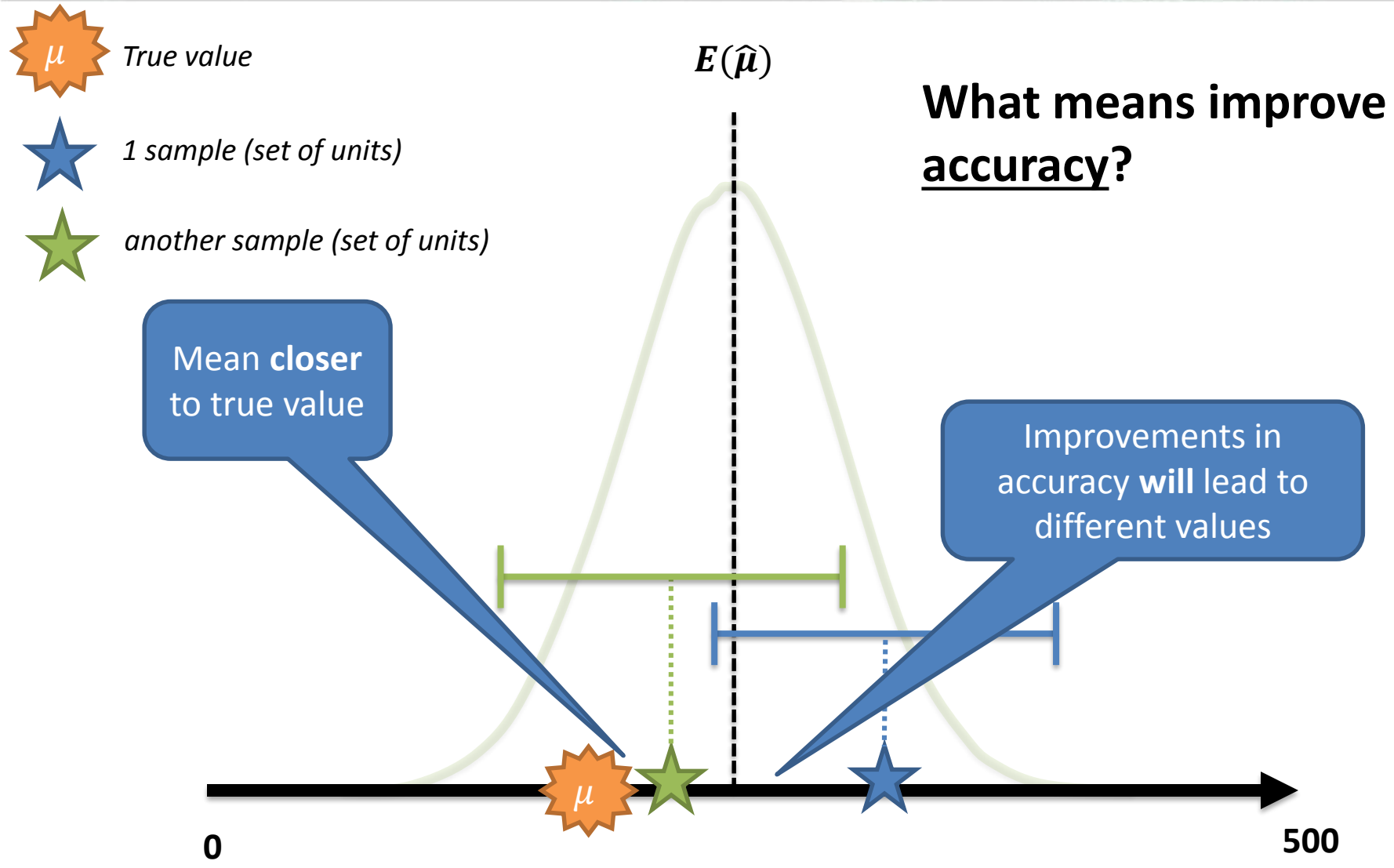
Annex - Uncertainty



Annex - Uncertainty



Annex - Uncertainty



Annex - Uncertainty