IPGSA: the new beginning!

Claudia Paoletti

European Food Safety Authority – EFSA

Italy

WCSB11, 21-23 May 2024

IPGSA MISSION AND VISION

Mission

Promote the development and application of the Theory of Sampling

IPGSA
INTERNATIONAL PIERRE GY SAMPLING ASSOCIATION

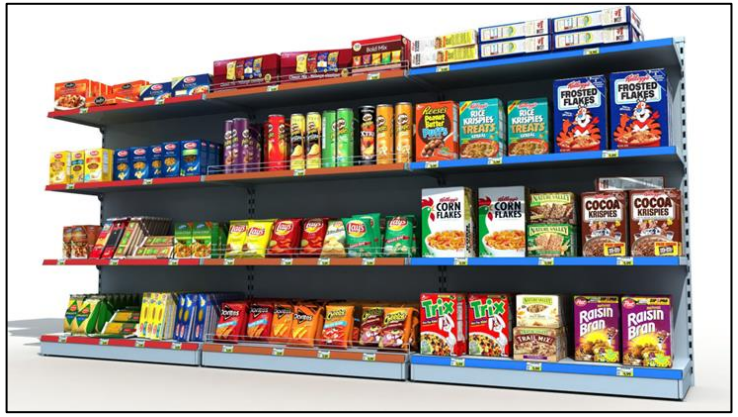
Vision

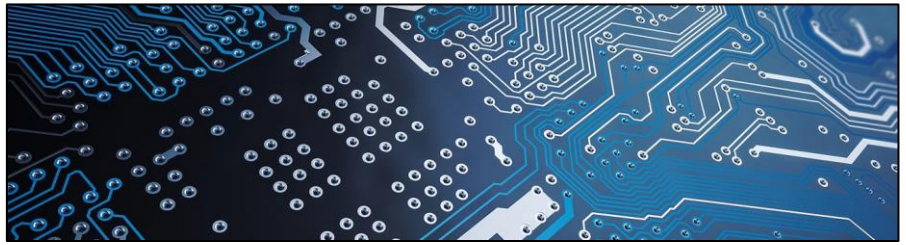
To be the internationally recognised scientific organisation for sampling guidance *across all sectors*

...ACROSS ALL SECTORS!

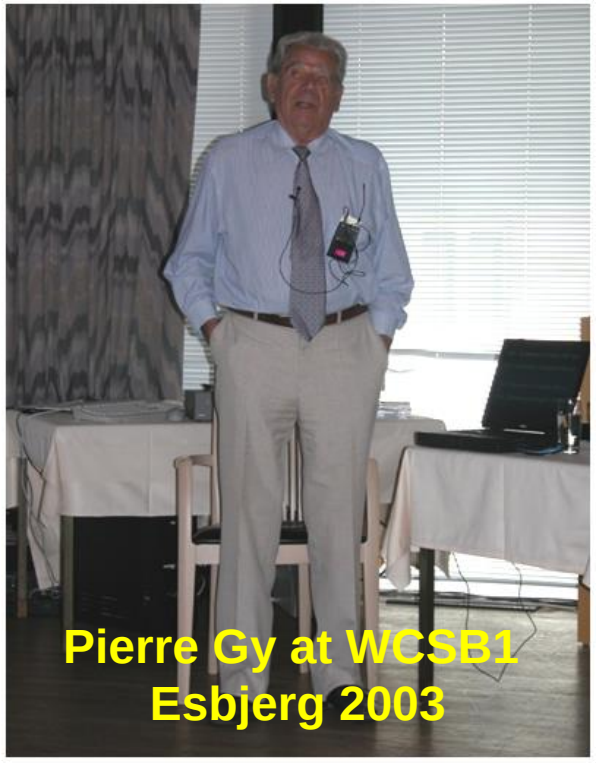
IPGSA

Advise on sampling of heterogeneous materials, lots, and processes





IPGSA – THE JOURNEY TO ITS ESTABLISHMENT


Pierre Gy at WCSB1
Esbjerg 2003

- **1950's**: Gy ground-breaking work
- **Around 2000**: recognition of TOS wider relevance
- **2003**: TOS acronym coined
- **2003**: WCSB1 in DK to exchange scientific views around representative sampling practices
- **2003-2017**: WCSB series fostered TOS dialog/interest
- **2017**: official establishment of IPGSA


WCSB1 Organizing Committee
Esbjerg 2003


WCSB8 Establishment of IPGSA
Perth 2017

2003-2017: TOS COMMUNITY EXPANDS & CONSOLIDATES

- TOS application extends to other sectors.
- TOS application grows within the traditional mainstream arenas.
- Constructive, lively and spontaneous forum.

WCSB6 Lima, 2013
TOS in Environmental

WCSB7 Bordeaux, 2015
TOS in Pharmaceutical

WCSB2 Brisbane, 2005
TOS in Food/Feed

efsa
EUROPEAN FOOD SAFETY AUTHORITY

Framing TOS in Risk Assessment!

IPGSA
INTERNATIONAL PIERRE GY SAMPLING ASSOCIATION

TOS IN THE FOOD AND FEED SECTOR: A DOCUMENTED SCIENTIFIC SUCCESS

EXTERNAL SCIENTIFIC REPORT

APPROVED: xx 2017 PUBLISHED: dd mmmm yyyy

Development and harmonisation of reliable sampling approaches for generation of data supporting GM plants risk assessment

Authors

First comprehensive TOS application to foods/feed commodities!

JOURNAL OF AOAC INTERNATIONAL

VOL. 33 NO. 7 (2021)

SAMPLING SPECIAL SECTION

Food and feed sampling: balancing ethics and money

Claudia Paoletti
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principles delineated in this report constitute a necessary and sufficient basis for producing reliable

SPECIAL GUEST EDITOR SECTION

Distributional Assumptions in Food and Feed Commodities—Development of Fit-For-Purpose Sampling Protocols

CLAUDIA PAOLETTI[1]
European Food Safety Authority (EFSA), Via Carlo Magno 1/A, 43100 Parma, Italy
KIM H. ESBENSEN
Geological Survey of Denmark and Greenland, Copenhagen, Denmark; ACABS Research Group, Department of Chemistry and Bios

SPECIAL GUEST EDITOR SECTION

Food and Feed Safety Assessment: The Importance of Proper Sampling

HARRY A. KUIPER[1]
Formerly Institute of Food Safety (RIKILT), Wageningen UR, Wageningen, The Netherlands
CLAUDIA PAOLETTI[2]
European Food Safety Authority (EFSA), Via Carlo Magno 1/A, 43100 Parma, Italy

The general principles for safety and nutritional evaluation of foods and feed and the potential health risks associated with hazardous compounds are described as developed by the Food and Agriculture Organization (FAO) and the World Health Organization (WHO) and further elaborated in the

Worldwide intensification of agricultural production has put great pressure on basic quality and safety characteristics of food and feed products. Wide-scale use of fertilizers, pesticides, growth promoting agents, and veterinary drugs may leave residues in edible products, and the presence of environmental contaminants in foods/feed may pose possible health risks to

VOL. 34 NO. 8 (2022)

SAMPLING COLUMN

Framing the Theory of Sampling in risk assessment: a compelling perspective for the future

Kim H. Esbensen[a] and Claudia Paoletti[b]
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[b]European Food Safety Authority – EFSA, Via Carlo Magno 1/A, 43100 Parma, Italy. E-mail: claudia.paoletti@efsa.europa.eu

See discussions, stats, and author profiles for this publication at: https://www.researchgate.net/publication/233592815

Simulating kernel lot sampling: The effect of heterogeneity on the detection of GMO contaminations

Article *in* Seed Science and Technology · October 2003
DOI: 10.15258/sst.2003.31.3.12

within which to ensure accuracy and precision of all sampling steps involved in the field-to-fork continuum, which is crucial to monitor foods and feed safety. Therefore, TOS must be integrated in the well-established FAO/WHO risk assessment approach in order to guarantee a transparent and correct frame for the risk assessment and decision

Food and feed materials are routinely sampled for a wide range of objectives, which can be broadly categorized into few main areas: risk analysis, compliance with regulatory requirements, post-market monitoring, surveillance, and manufacturing process control. Those involved with safety assessment establish daily requirements for nutrients in food and feed as well as safety ranges for toxic substances that may

CEN

2006-07-17 | CEN/TC 275/WG 11 **N 0167**

"Genetically modified foodstuffs"

Secretariat of CEN/TC 275/WG

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SAMPLING COLUMN

Theory of Sampling (TOS): *pro et contra*

Kim Esbensen Claudia Paoletti

Kim H. Esbensen[a] and Claudia Paoletti[b,†]
[a]KHE Consulting (www.kheconsult.com) & Guest professor (Denmark, Norway, Puerto Rico)
[b]Deputy Head GMO Unit, European Food Safety Authority—EFSA, Via Carlo Magno 1A - 43100 Parma, Italy.
E-mail: claudia.paoletti@efsa.europa.eu

Official Journal of the European Union

II

(Acts whose publication is not obligatory)

COMMISSION

COMMISSION RECOMMENDATION

of 4 October 2004

on technical guidance for sampling and detection of genetically modifie produced from genetically modified organisms as or in products in the c No 1830/2003

(Text with EEA relevance)

(2004/787/EC)

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Trends Trends in Analytical Chemistry, Vol. 32, 2012

Representative sampling of large kernel lots I. Theory of Sampling and variographic analysis

Kim H. Esbensen, Claudia Paoletti, Pentti Minkkinen

Yet, the critical randomness assu undocumented and therefore unjust The high likelihood of unrecogni heterogeneity, sometimes due to the itself (e.g., mycotoxins, bacterial infe and transportation of lots and/or order intrinsic to industrial manufact

Eur Food Res Technol (2006)
DOI 10.1007/s00217-006-0299-8

ORIGINAL PAPER

Claudia Paoletti · Andreas Heissenberger · Marco Mazzara · Sara Larcher · Emanuele Grazioli · Philippe Corbisier · Norbert Hess · Gilbert Berben · Peter S. Lübeck · Marc De Loose · Gillian Moran · Christine Henry · Carlo Brera · Imma Folch · Jaroslava Ovesna · Guy Van den Eede

Kernel lot distribution assessment (*KeLDA*): a study on the distribution of GMO in large soybean shipments

31 October 2005 / Revised: 13 Februa
er-Verlag 2006

t The reliability of analytical te by sampling uncertainty. Samp f error and the aim of "good" sam ize this error. Generally the distr odified (GM) material within lots n order to use binomial distributi his assumption was never verifie rimental data investigating the di

CEN/TC 275/WG 11

Foodstuffs - Methods of analysis for the detection of genetically modified organisms and derived products - Sampling strategies (prCEN/TS 15568)

Trends in Analytical Chemistry, Vol. 32, 2012 Trends

Representative sampling of large kernel lots II. Application to soybean sampling for GMO control

Pentti Minkkinen, Kim H. Esbensen, Claudia Paoletti

Trends Trends in Analytical Chemistry, Vol. 32, 2012

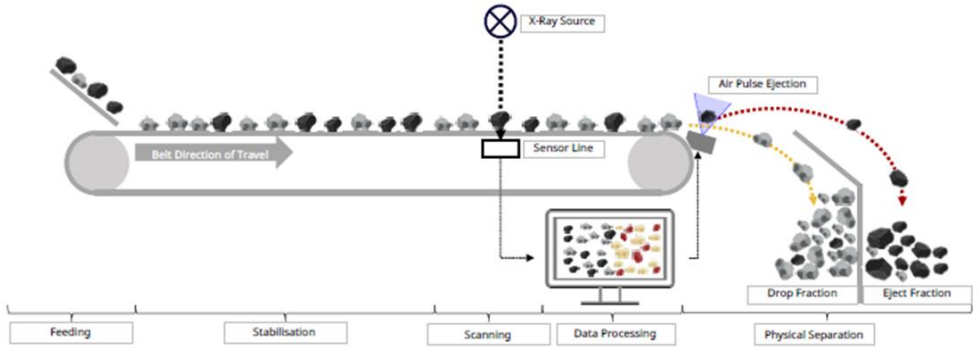
Representative sampling of large kernel lots III. General considerations on sampling heterogeneous foods

Kim H. Esbensen, Claudia Paoletti, Pentti Minkkinen

TOS COMMUNITY CONTINUES TO EXPAND

- **Process sampling**, e.g. automated sample preparation: critical to minimise the risk that sample preparation contributes significantly to the Fundamental Sampling Error (FSE).

- **Sampling for Sorting calibration & optimisation**: where TOS can help separating particles with different characteristics (metals/minerals…*chemical composition*?) of economic interest.



- **Sampling as biomarkers** (NGO TOXICOWATCH Abel Arkenbout) to make biological inferences: chicken eggs, vegetation, sheep's wool, water, soil

IPGSA CHALLENGES

Diversity of Experts:
- Integration across sectors enriches IPGSA
- Brings new challenges and broadens perspectives

Generational Turnover:
- Embracing new ideas from the next generation
- Balancing wisdom with fresh insights

Balancing Theory and Practice:
- Avoiding overly theoretical approaches that deter practitioners
- Ensuring TOS remains accessible and applicable

Theoretical Disagreements:
- Navigating diverse theoretical approaches
- Maintaining collaboration despite differences

IPGSA NEW BEGINNING

Three macro-objectives:

Know-how development: guides TOS development

Advise and support: provides assistance on sampling matters

Capability building: facilitate training and quality programs

- Establish a **governance** to manage and guide initiatives.
- Establish a **work programme** defining the strategic areas of focus.

IPGSA GOVERNANCE

Council with members from different disciplines

- Prepared and adopted IPGSA constitution
- Heads IPGSA
- Manages all IPGSA activities

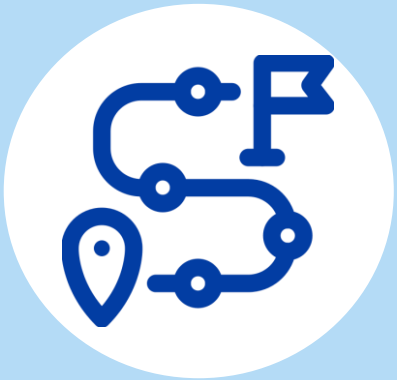
Dr. Oscar Dominguez
IPGSA Vice-President

Dr. Ralph Holmes
IPGSA President

Dr. Claudia Paoletti
IPGSA Vice-President

International Advisory Committee: sampling specialists appointed by the Council for providing advice to the Council.

IPGSA WORKPROGRAMME



Developed an association work-programme

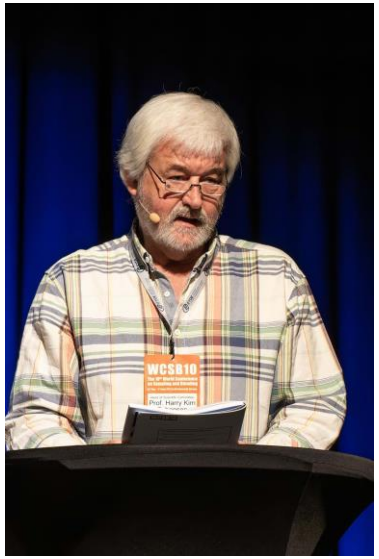
Defined a strategy for its implementation

Established specific Working Groups (WG) to drive IPGSA's objectives

IPGSA WORKING GROUPS

1. **WG1 - Scientific Platform**: Fosters the development and dissemination of TOS knowledge.
2. **WG2 - Communication Platform & LinkedIn**: Enhances IPGSA's digital presence and facilitates professional networking.
3. **WG3 - Technical Trainings**: Offers educational programs to build sampling competencies across sectors.
4. **WG4 - Stakeholders' Management**: Engages with key stakeholders to align efforts and expand TOS application.
5. **WG5 - Budget**: Manages financial resources to support IPGSA's activities and sustainability.

WG1 – SCIENTIFIC PLATFORM

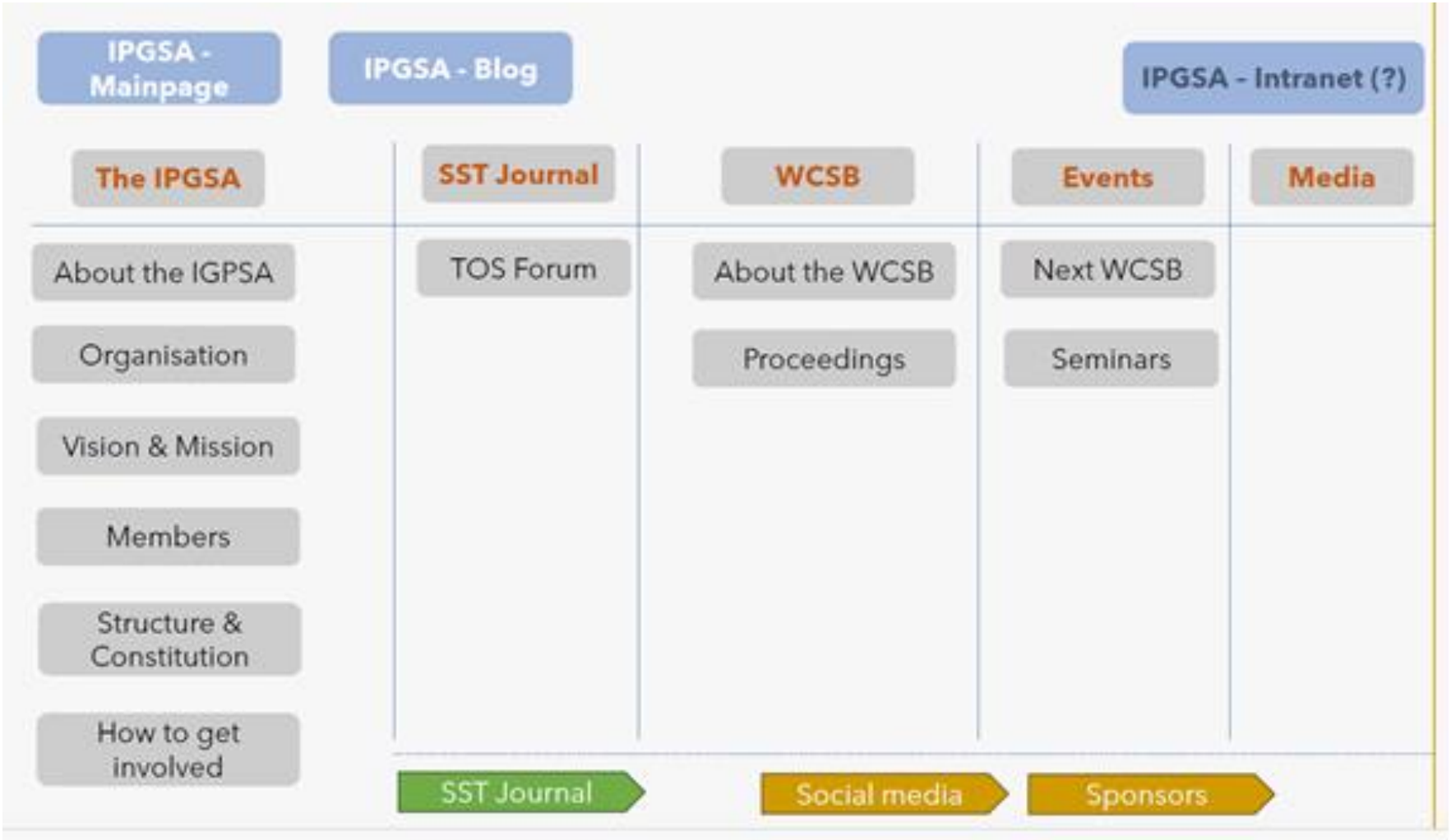


WG Leader: Kim Esbensen

- Sampling Science and Technology launched! (SST#2 October 2024)
- TOS Forum issues 1-11 available under the Sampling Science and Technology webpage
- 32 *Sampling columns* on internet as educational 'TOS Learning Hub'
- Open Access to WCSB12 Proceedings accessible from conference website and IPGSA webpage
- *Ongoing project: ensure complete open access to all proceedings of WCSB series on IPGSA webpage*

WG2 – COMMUNICATION PLATFORM

Main task: launch IPGSA new homepage!



WG Leader: Martin Lischka

WG3 – TECHNICAL TRAINING

Offer lectures, structured courses and training materials to private and public organisations, academia, research organisations and governmental bodies

WG Leader: Oscar Dominguez

Recent examples:

- Curtin University, Perth, Western Australia, Australia (August 2023)
- Universidad del Desarrollo, Santiago, Chile (April 2024)
- University of Parma, Master in Food&Feed Safety, Italy (June 2024)

WG4 – STAKEHOLDERS MANAGEMENT

Identifies potential IPGSA stakeholders, analyses their needs and expectations to plan collaborations

WG Leader: Aldwin Vogel

Recent examples:

- TIC Council Food and Safety Committee: possible collaboration to implement standardized representative/TOS-compliant sampling practices
- ISO: development of international TOS compliant sampling standards

WG5 – BUDGET

- Financial entry through WCSB conferences
- Sponsors and voluntary contributions
- Proposals for sustaining IPGSA

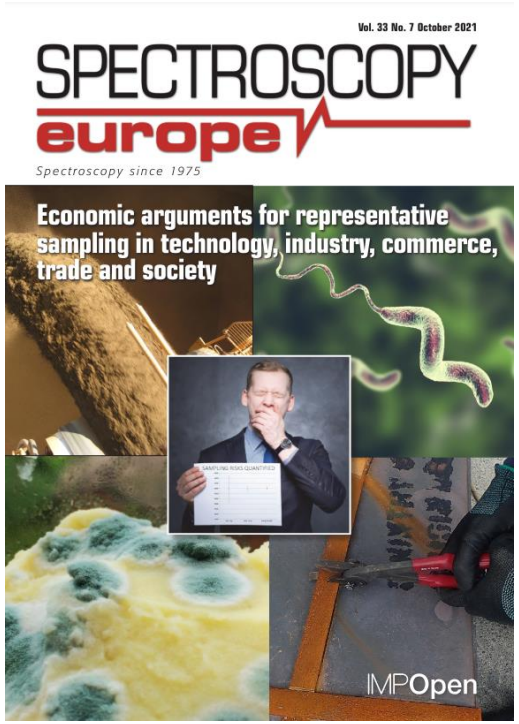
WG Leader: Philip Davin

The search for funding opportunities is pressing and continuous!

OTHER IPGSA ACTIVITIES

- Awards and supervises WCSB series to promote TOS and facilitate international dialogue.
- Participates in developing standards
- Silos-breaking publications!

After 10 years, DS3077 aims to be proposed for an ISO standard.

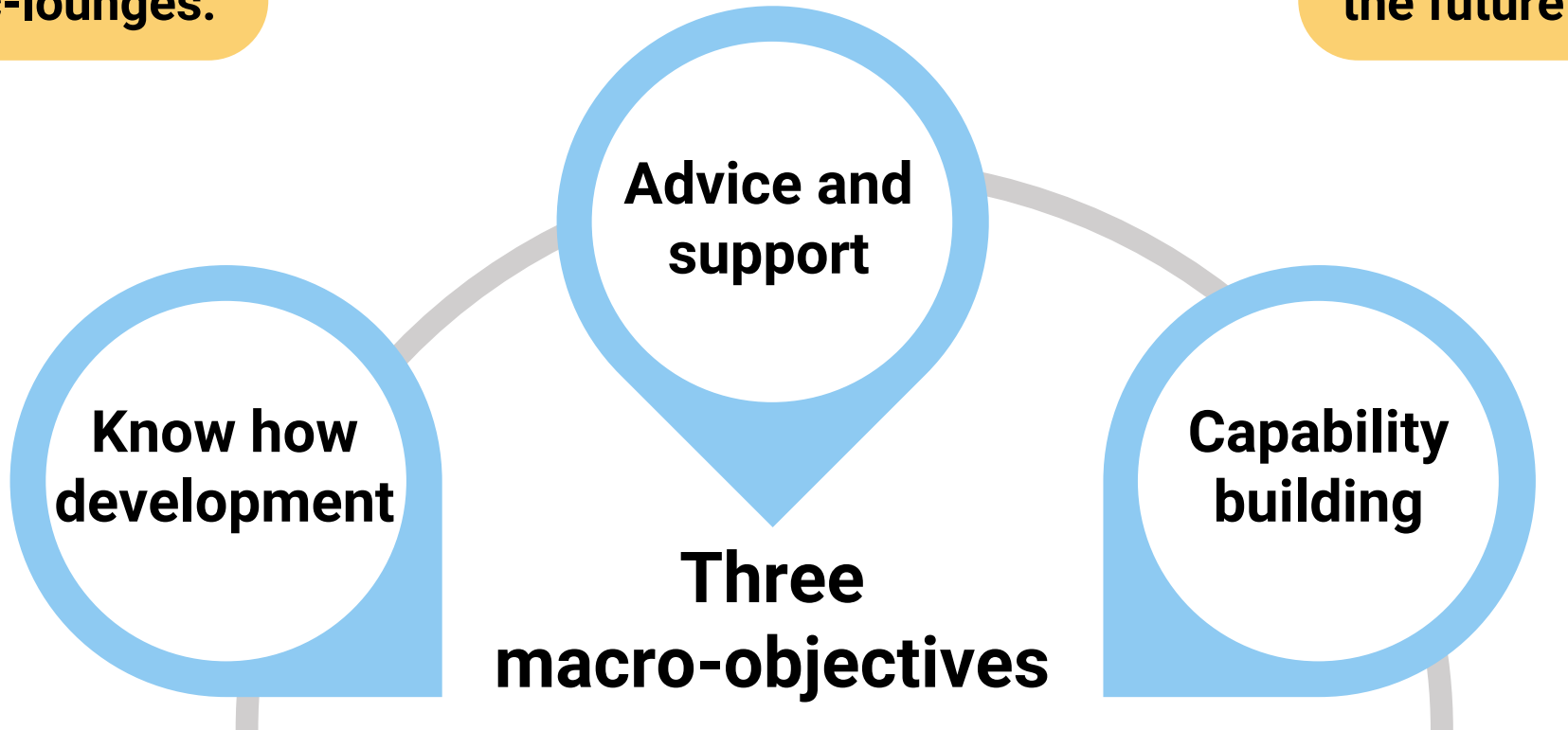


CONCLUDING REMARKS

Historically sampling remained the priority of small, highly technical scientific-lounges.

Need to win the inertia against “fit for purpose” data which is normally just assumed as representative. Many years are still needed before the merit of sampling is fully recognized.

The future of sampling depends on what we do today, and we are all accountable towards the future generations.



IPGSA Council: Elke Thisted, Kim Esbensen, Philippe Davin, Karin Engström, Claudia Paoletti, Oscar Dominguez, Rodolfo Romanach, Aldwin Vogel, Martin Lischka, Stephane Brochot, Sheryl Tittlemier, Ralph Holmes.

Be the change you wish to see in the world

(Mahatma Gandhi)