



**Nutrition for
Resilience**

Micronutrient Forum 6th Global Conference

The Hague, the Netherlands **& Online**

16-20 October 2023

Resilience and Ecological Approach to Anemia



#MNF2023 | MNForum2023.org



Building Resilience—The Ecological Approach to Anemia Programming

Laura Hackl on behalf of the USAID Advancing Nutrition Anemia Task Force and the HEmoglobin MEasurement team

Resilience and Ecological Approach to Anemia

**Micronutrient Forum
October 20, 2023**



Credit: Liam Wright/ICRISAT



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Globally Endorsed Goals for Anemia Reduction

By the year 2025*:

“Achieve a **50% reduction in anemia** [vs. 2012 figures]
in women of reproductive age”

Source: WHO (World Health Assembly). 2012 “World Health Assembly Nutrition Targets.” Accessed October 1, 2023. <https://www.who.int/teams/nutrition-and-food-safety/global-targets-2025>

*Extended to 2030 as an United Nations Sustainable Development Goal

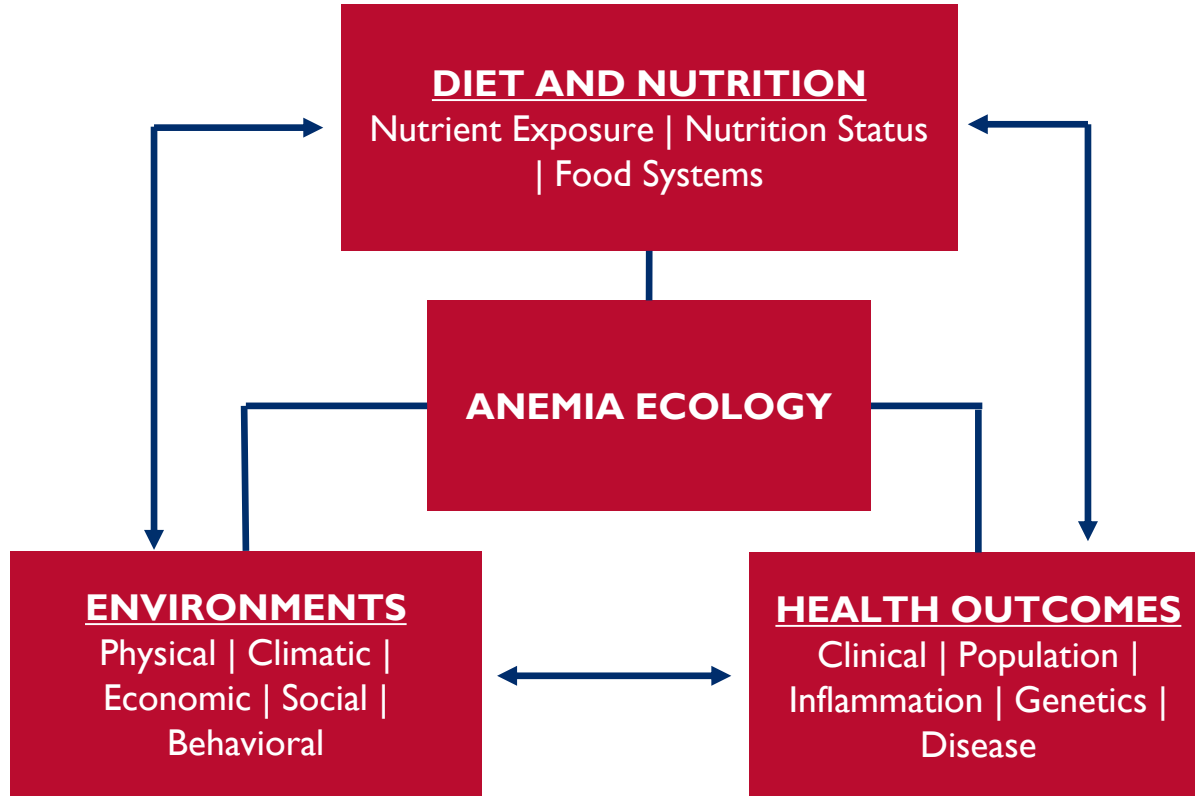
Is this type of commitment new?

By the year 2000:

“Reduction of **iron deficiency anemia** in women
by one third of the 1990 levels”

Source: UNICEF. 1990. “World Summit for Children.” Accessed October 1, 2023. <https://www.unicef.org/documents/world-summit-children>

The Ecology of Anemia

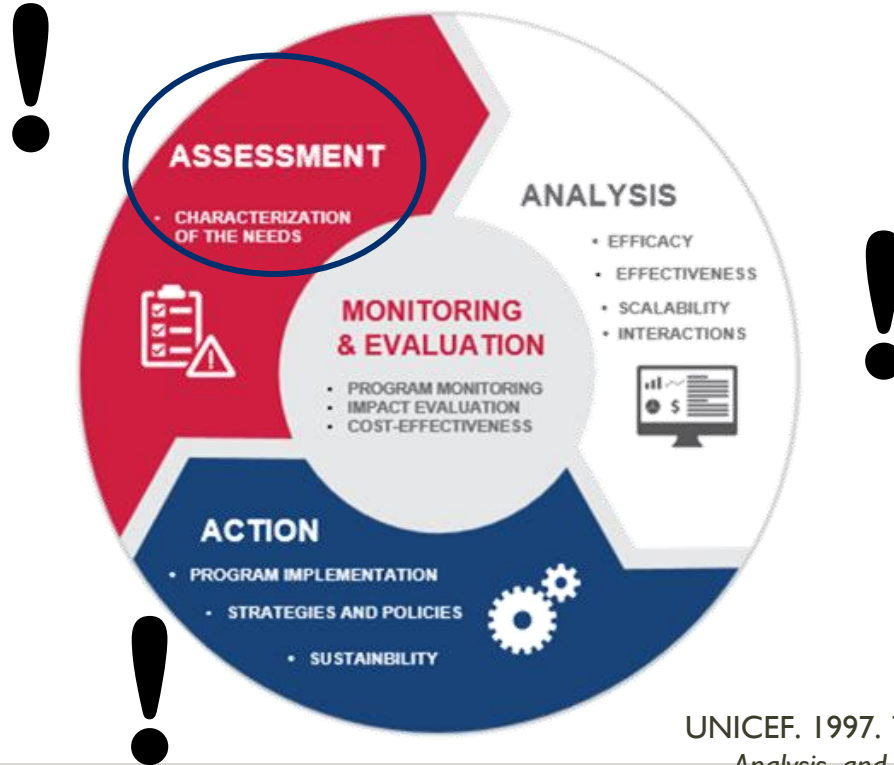


Operating assumptions

- Anemia has multiple causal factors
- An ecology defines the interactions between a complex system (i.e., internal and external environments).

Understanding the components of the anemia ecology is critical to identify and treat with precision at individual and population levels.

Challenges in Assessing/Addressing Anemia



UNICEF. 1997. *The Care Initiative: Assessment, Analysis, and Action to Improve Care for Nutrition*. New York: UNICEF.

HEME Objective

Identify *best procedures/methods for determining hemoglobin concentration/anemia prevalence* in population-based surveys

Specifically—

- assess the performance of three HemoCue® models vs. certified hemoglobin autoanalyzer
- using venous, pooled capillary, and single-drop capillary blood samples.



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Multi-Country Collaboration

Cohort	Venous		Capillary Pool	Single-drop Capillary
	Instrument	Sample Size	Sample Size	Sample Size
1	Autoanalyzer	20l+	20l+	
		30l	30l	
		80l	80l	
2	Autoanalyzer	20l+		20l+
3	Autoanalyzer	30l		30l
4	Autoanalyzer	80l		80l

Cambodia, Ethiopia, Guatemala, Lebanon

Nigeria, Tanzania

18 women and 18 children per cohort

How can we further support building resilience?

- Consider an ecological approach
 - How do the physiology and response to infection/disease blend with the specific aspects of dietary iron nutrition and bioavailability?
 - How should we represent iron deficiency anemia in the context of anemia, given its multifactorial causation?
 - Can we improve our precision by considering the role of multiple other nutrients/factors?
- Assess—analyze—act
- Collaborate

USAID Advancing Nutrition's Anemia Resources

- Please scan the QR codes below or visit USAID Advancing Nutrition's Resource Hub at advancingnutrition.org/anemia

Anemia Toolkit



Anemia Task Force Supplement





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Hemoglobin Measurement

Automated hematology analyzers

- Appropriate standard for hemoglobin (Hb) measurement used with venous blood



Portable devices

- Most commonly used: HemoCue—Hemoglobin device (HemoCue®, Angelholm, Sweden)
- Usually used with capillary blood samples
 - Single drop of capillary blood from a finger prick, or
 - Pooled capillary blood

Various **factors at different stages of blood collection** can affect measurement

- Venous or capillary blood collection
- Measurement device
- Sample storage and analysis conditions
- Environmental factors (e.g., temperature, humidity)

