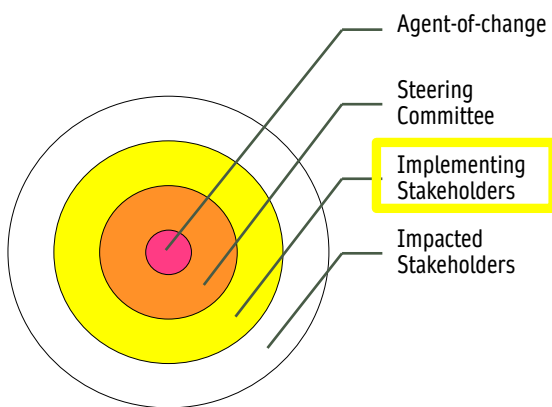
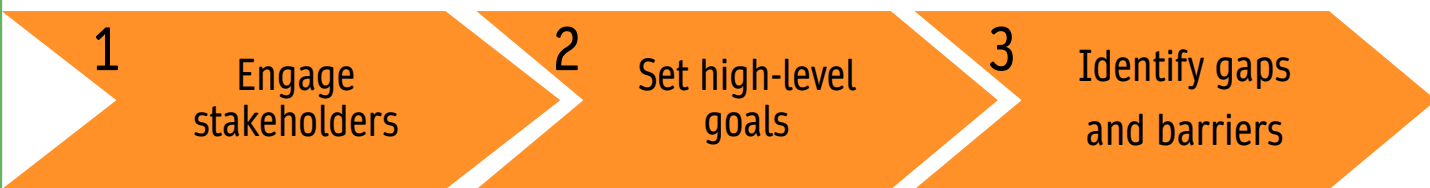


Phase II – Set a Vision

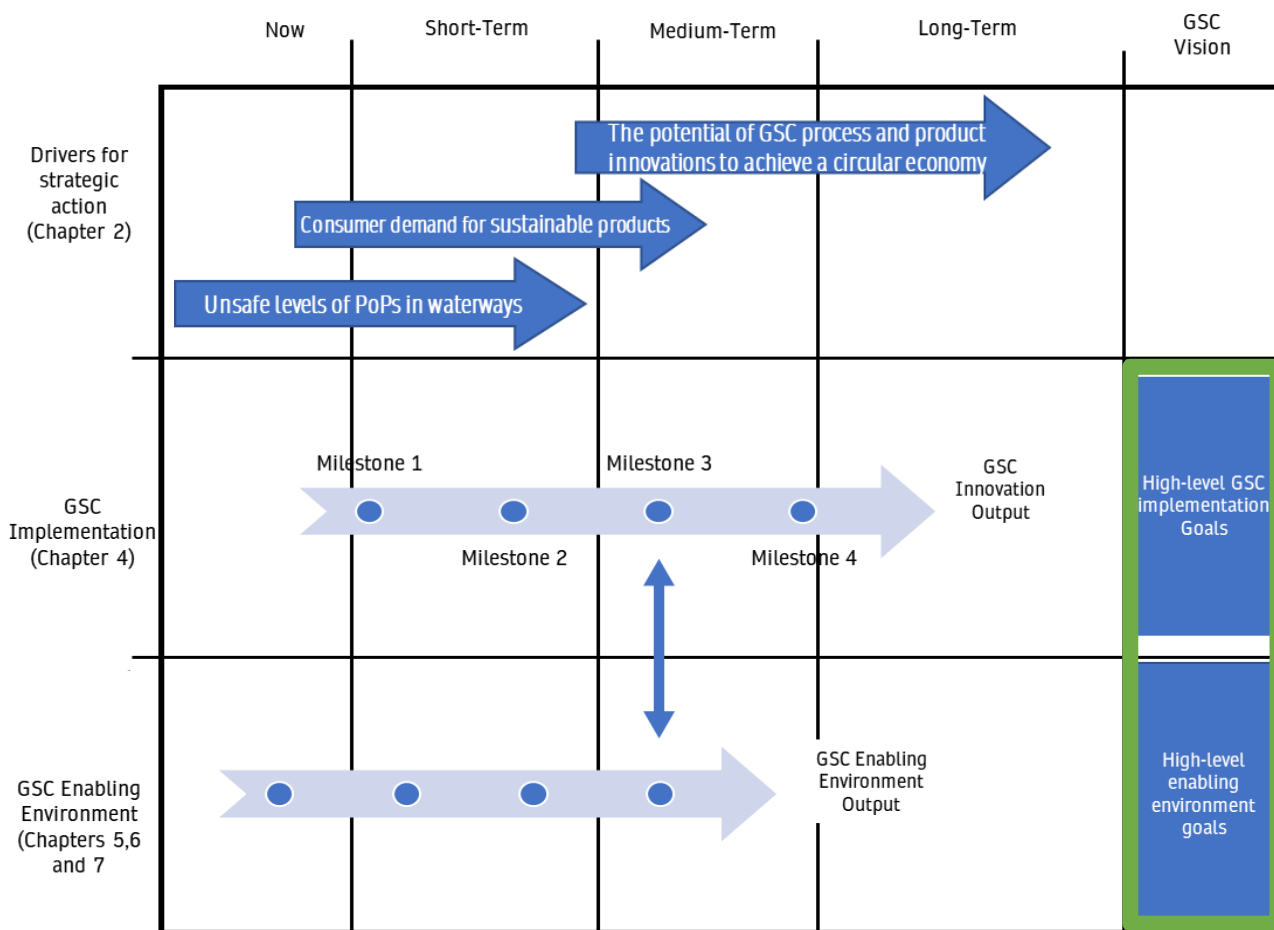
Where are we going?



A critical step of Phase 2 is the engagement of a wider group of stakeholders that will help define the details of the strategic action plan and play a role in its implementation.

This section of the practical guidance will help to identify key stakeholder groups, and provide information on how these groups can contribute to strategic action to advance green and sustainable chemistry.

A key outcome resulting from Phase 2 will be a set of high-level goals for the strategic action. It may be helpful to classify the high-level goals as either “implementation” or “enabling environment”. These high-level goals can then be inserted into the road map chart, as indicated by the green box below.

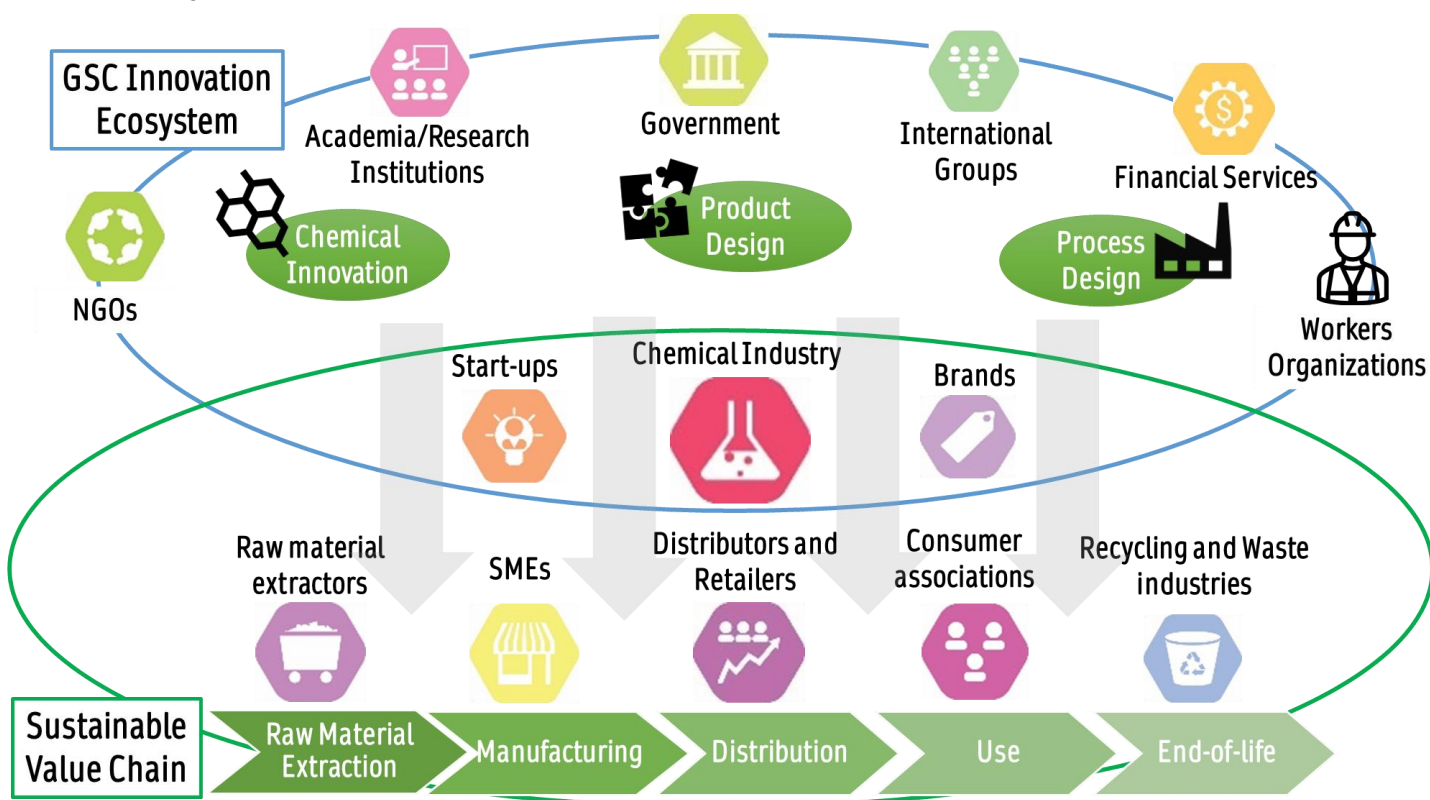


Phase II – Set a Vision *Where are we going?*

Select and engage a wider group of stakeholders to help continue the planning and eventual implementation of the strategic action.



The participation of actors from a range of stakeholder groups is critical to any successful strategic action that advances green and sustainable chemistry. In this step, the steering committee will engage a wider group of stakeholders to be involved with the continued planning, and eventual implementation of the strategic action. This section of the practical guidance includes illustrations of multistakeholder collaboration, as well as activities and advice to help users of the guidance understand who can be engaged, and how they can contribute to the strategic action.

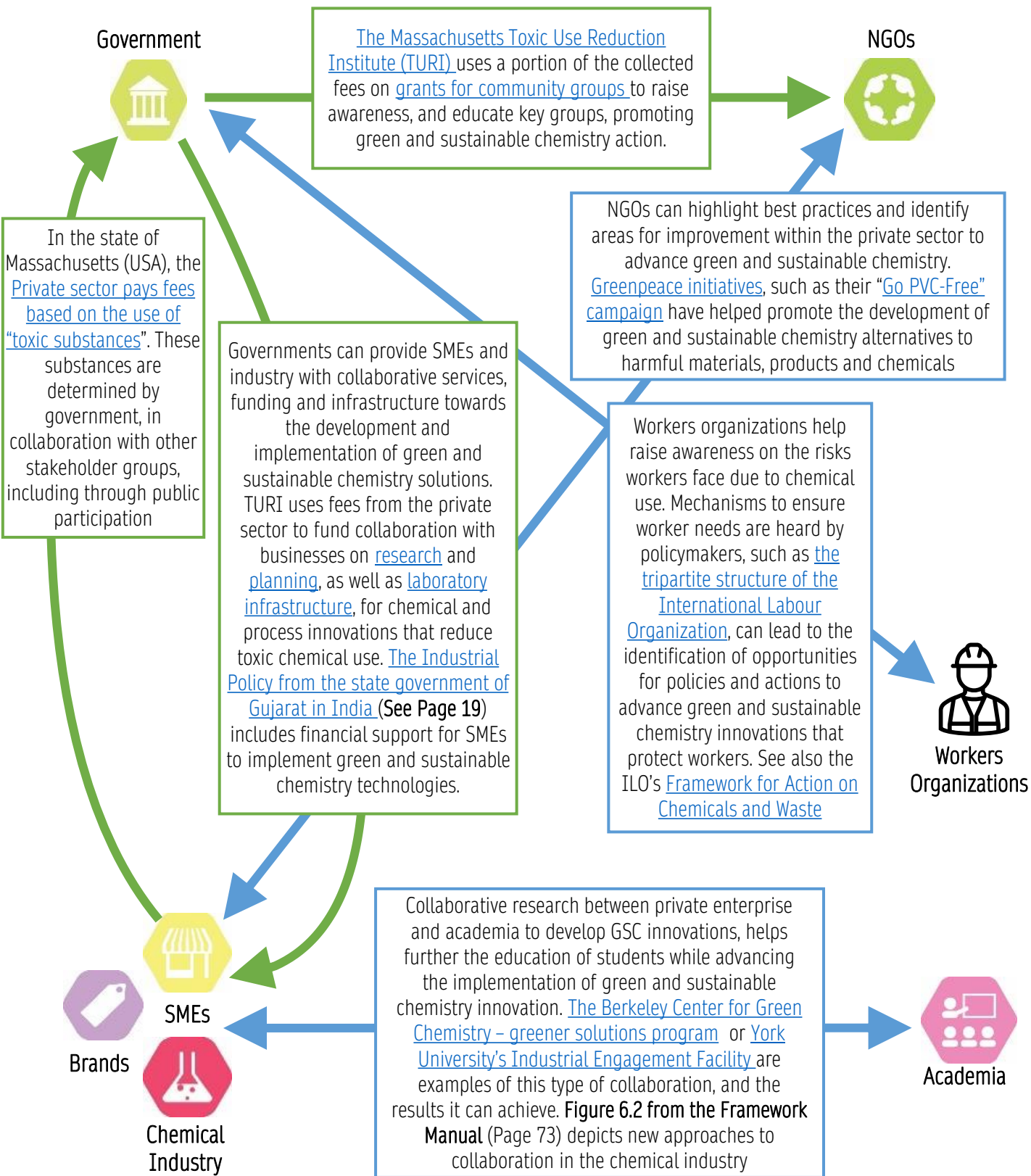


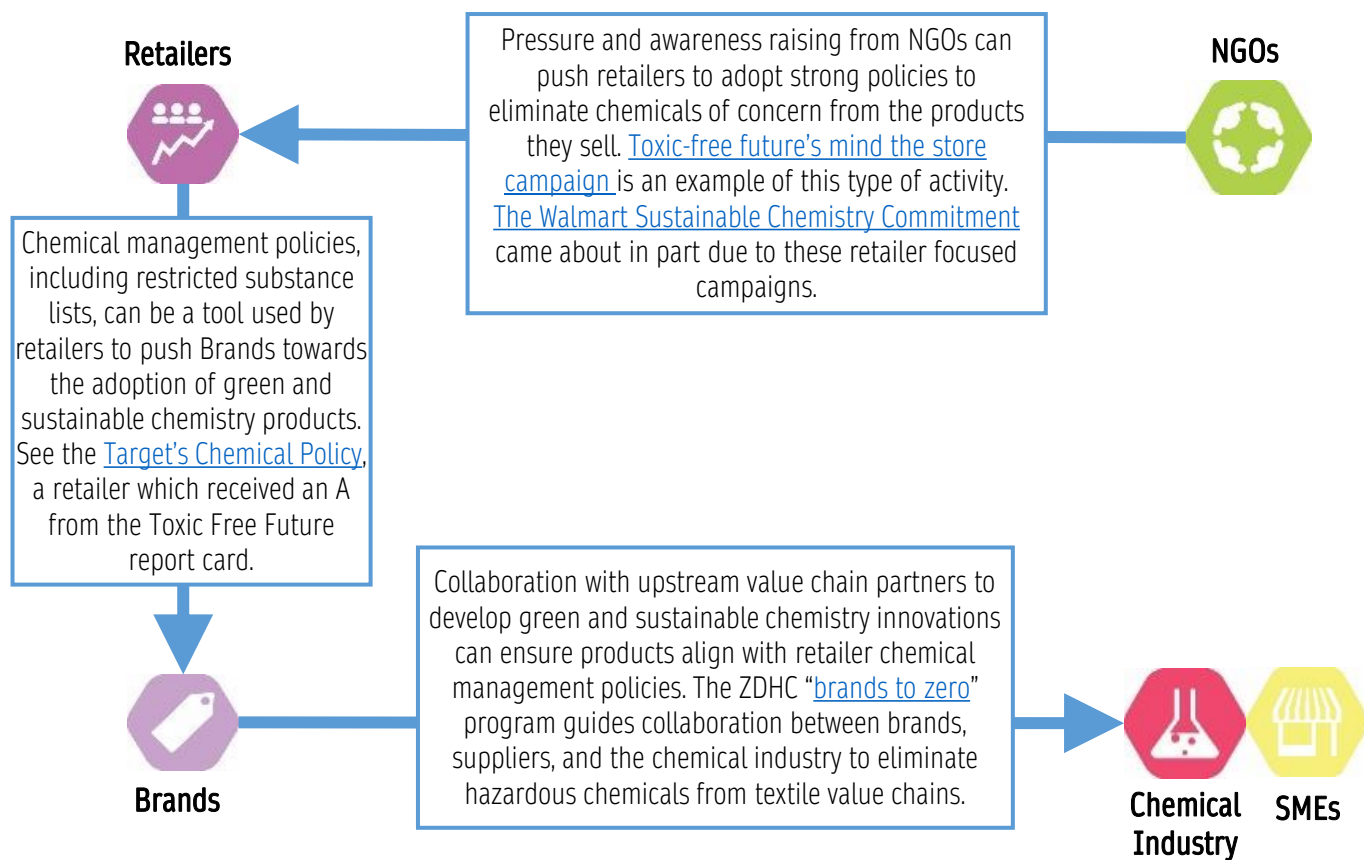
Building upon **Figure 3.1 from the Framework Manual** the above diagram outlines the roles and relationships of key stakeholder groups in strategic action to advance green and sustainable chemistry. The groups are positioned based on how they typically contribute to advancing green and sustainable chemistry innovations (chemical innovations, product design, process design). Those which typically enable the development of innovations are placed on top, while those which are responsible for their implementation into the value chain are placed on the bottom. Those with key roles in both are placed in the middle.

Section 6.3 of the **Framework Manual** further elaborates on the roles and needs of key stakeholder groups in the GSC Innovation ecosystem.

Strategic Action to Advance Green and Sustainable Chemistry Phase II – Step 1

Multistakeholder collaboration is essential to strategic action to advance green and sustainable chemistry. The below diagram draws upon relevant multistakeholder initiatives and programs that have advanced green and sustainable chemistry, to illustrate how key stakeholder groups can support each other to develop and implement green and sustainable chemistry innovations.





A **purpose statement**, or a brief description on what the strategic action will seek to achieve, is helpful when initially reaching out to stakeholders. This purpose statement along with the boundaries, UNEP's Objectives, and the drivers selected in Phase 1 can be used to approach potential stakeholders for the strategic action.

Stakeholder examples of purpose statements for strategic action



Gujarat Cleaner Production Centre – Implement green and sustainable chemistry innovations and technologies to improve industrial infrastructure resulting in reduced air and water pollution.

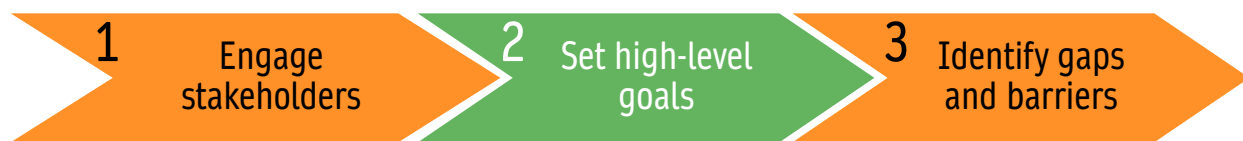
ZDHC – Widespread implementation of sustainable chemistry, driving innovations and environmental best practices in the textile, apparel, leather and footwear value chains.

WHO Chemicals Roadmap - Improved health, in both the short and the long term and for future generations through the reduction of risk to health from exposure to chemicals throughout their life cycle

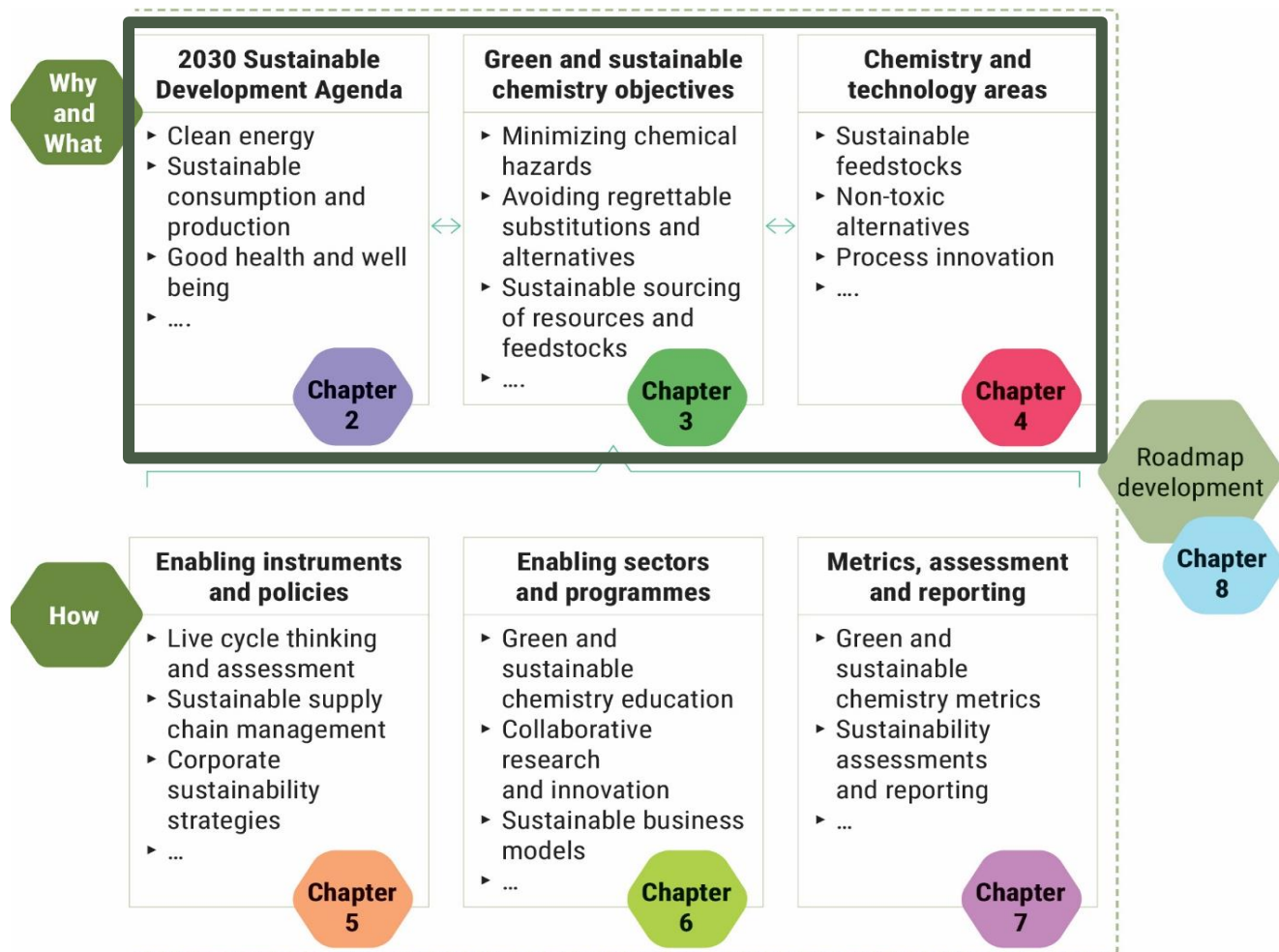
ACS Green Chemistry Education Roadmap– Form a generation of students able to understand and evaluate benefits and adverse impacts of chemicals and materials in society

Phase II – Set a Vision *Where are we going?*

Work with all stakeholders to determine high-level goals on the desired impacts of the strategic action.



In this step, all stakeholders will work together to select high-level “GSC Implementation” goals. These goals are the destination of the strategic action and are meant to define the intended outcomes and expected impact. More concrete and specific outcomes will be decided in the next phase. The practical guidance includes examples of high-level “GSC Implementation” goals, with activities and resources to help form them.



This practical guidance is designed to align with the organizational structure of the Framework Manual (see above). Users of the guidance are encouraged to form high level “GSC Implementation” goals which describe “What” the vision of the strategic action is (Chapters 2, 3 and 4). The high-level “enabling environment goals” will be defined in the following step and aim to describe “How” the strategic action will achieve its goals (Chapters 5, 6 and 7).





These specific sections of the Framework Manual may help in forming high-level “GSC Implementation” goals.

Chemistry and technology innovation to advance green and sustainable chemistry
- Chapter 4

An understanding of green and sustainable chemistry technologies and their impact may inform the development of high-level goals

Ensuring that innovations meet sustainability criteria
- Page 17

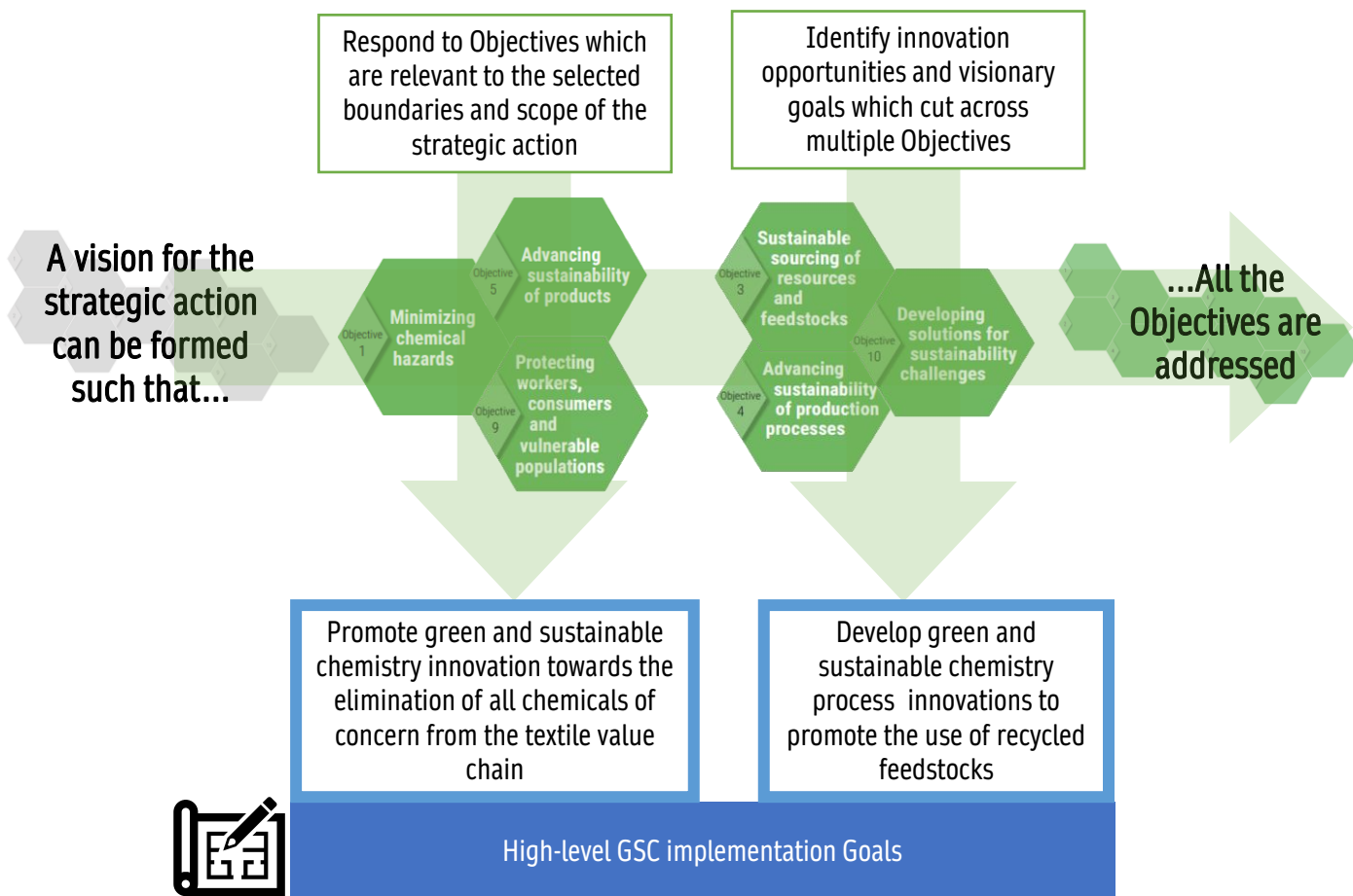
Describes how green and sustainable chemistry innovation can address the SDGs

Potential of green and sustainable chemistry innovation in a sector: The example of energy
- Section 4.6

Illustrates how green and sustainable chemistry innovation can drive sustainability of key industrial sectors



Stakeholders have highlighted the Objectives as a helpful resource to set a vision for strategic action that goes beyond traditional chemical management such that chemistry innovation supports and is compatible with the 2030 sustainable development agenda. The diagram below illustrates how the Objectives can be a reference when selecting high-level “GSC Implementation Goals”. Two examples of such goals can be found at the bottom of the diagram.





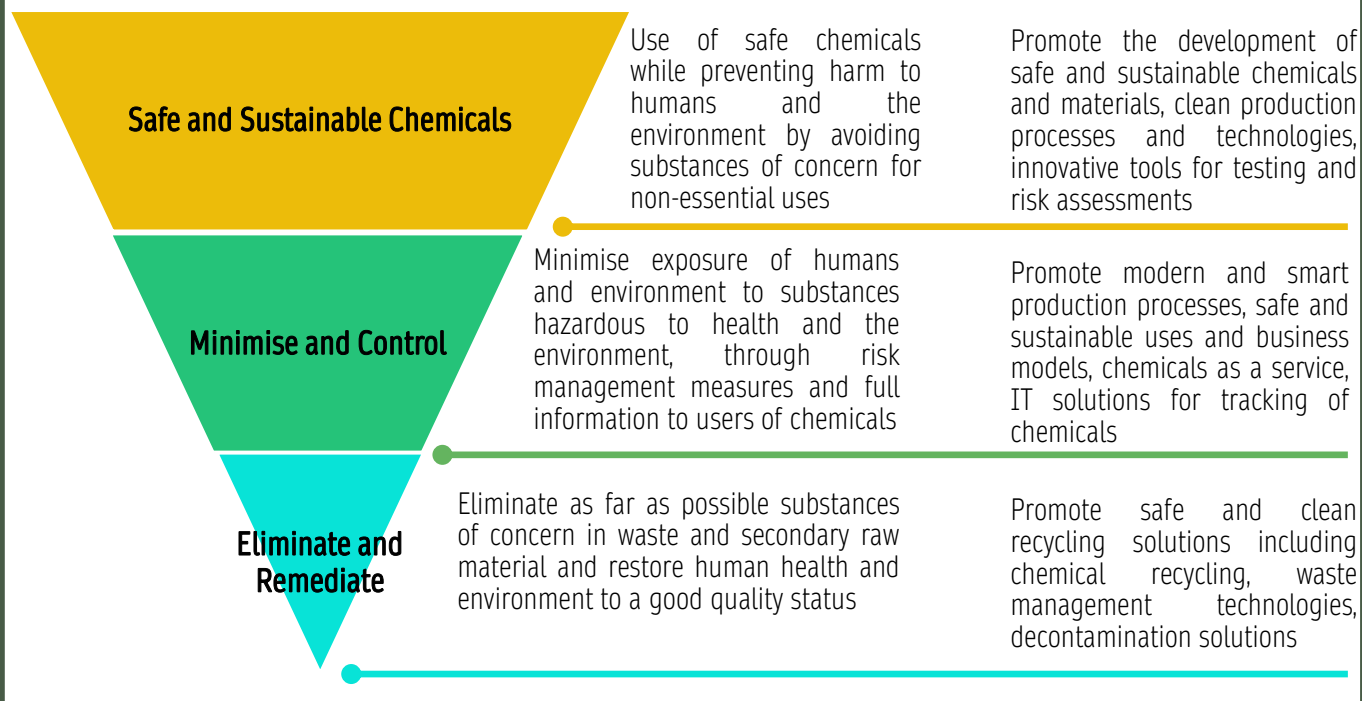
Stakeholder Example - ACS Visioning Workshop

A kick-off “**visioning workshop**” can be a helpful activity to bring together the implementing stakeholders and steering committee to collectively determine the vision for the strategic action. ACS held such a workshop early in the development of the green chemistry education roadmap. The event brought together thought leaders in green chemistry and engineering along with experts in chemistry education research. Participants were selected to represent academia and industry. Participants from academia were selected based on their experience advancing green and sustainable chemistry or chemistry education research.

Key outcomes from the from the workshop included a vision statement, a rationale for the strategic action, and some key lines of work to fulfil the vision.



A key element of the EU green deal, the “[chemical strategy for sustainability](#)”, lays out the below “**toxic-free hierarchy**” as their vision for the future of chemical use and production within the EU.



Phase II – Set a Vision *Where are we going?*

Consult with stakeholders to determine gaps and barriers which may prevent the achievement of high-level “GSC Implementation” goals.



In this step, consultation with implementing stakeholders will help to determine and describe factors that could prevent the achievement of the high-level “GSC Implementation” goals from the previous step. The guidance will then help to define the high-level “enabling environment” goals whose achievement will allow implementing stakeholders to overcome the identified gaps and barriers.

Stakeholder examples of gaps for strategic action to address



Gujarat Cleaner Production Centre – SMEs who would be responsible for implementing green and sustainable chemistry technologies do not have sufficient funding or technical capacity to develop innovations.

ZDHC – The relationships between the different levels of the textile supply chain are unequal (i.e. between brand and chemical manufacturer), with no initiative working to bring them together

ACS – Chemists and other workers are improperly trained to implement and advance green and sustainable chemistry in industry. There is a lack of understanding among students of the relationship between chemistry and human and environmental systems



Stakeholders have highlighted basic chemical management systems as a pre-requisite for developing and implementing green and sustainable chemistry innovations. Gaps in chemical management can be a barrier for strategic action to advance green and sustainable chemistry



These are some examples of barriers for advancing green and sustainable chemistry. Using the below categories and examples may be helpful when consulting with stakeholders to get a full picture of the unique challenges they face.

Economic / Financial

- Insufficient funding to universities to develop GSC relevant research programs
- Lack of access to capital for SMEs and entrepreneurs to develop, scale-up and implement GSC innovations
- Deterring up-front costs to implement GSC processes for production

Regulatory

- Fragmented and ineffective regulatory frameworks
- Regulations that promote risk-control rather than risk-prevention

Technical

- Immature GSC technologies and concepts
- Lack of interdisciplinary collaboration and training to develop and implement GSC solutions
- Gaps in data and information relevant to identifying opportunities for GSC and tracking implementation

Organizational

- No GSC champions in positions of change
- Low awareness around GSC in government, industry and society
- Lack of information-sharing on GSC drivers and solutions

Identified gaps and barriers can be reformulated to set high-level “enabling environment” goals. Achieving these goals will build stakeholder capacity and create an enabling environment such that the high-level “GSC implementation” goals determined earlier in this phase can be achieved.



Gap / Barrier

High-level GSC “enabling environment” goal

Lack of access to capital and technical know-how for SMEs and entrepreneurs to develop, scale-up and implement GSC innovations



Improve support to SMEs and start-ups to support the development and implementation green and sustainable chemistry innovations.

No mechanisms for collaboration between stakeholders to develop and implement green and sustainable chemistry innovations



Facilitate collaboration between academia, government, and industry with the mission of developing and implementing green and sustainable chemistry innovations

Fragmented and ineffective chemical management system



Fortify and build capacity towards the sound management of chemicals within the defined boundaries of the strategic action

Both categories of high-level goals can now be inserted into the road map chart. Two examples from the practical guidance are shown in the sample chart below.

