

**Preliminary Comments from Members of the Chartered SAB on the SAB
Draft Report *SAB draft (11-3-2014) Review of the EPA draft Report on the
Environment 2014***

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Comments from lead reviewers

Comments from Dr. Ingrid Burke (partial comments)

Overview statements:

The site is really, really great, compared with the static document of the past iterations of the ROE. It's interesting and phenomenally useful for a citizen, a scholar, and oh my gosh for teaching it's fantastic.

That said, it's horrendously out of date. I guess all the effort went into design, but when I look at the trends and see them through 2005 when the last ROE was dated years AFTER that, it's dismaying. The top of the page saying we will review this last July doesn't help...really, some of the cosmetics could be fixed by a web programmer in an hour....needed doing!

For the last ROE, I recommended a more rotating approach, taking one resource class and reporting on it every year. This web approach with constantly updated data is very very cool instead. GREAT idea. But ...posting outdated data is a hazard.. I do recommend taking the year 2014 off everything, and just posting data as fast as they are summarized. It's just the "ROA", which is always current, now. One will experience different dates for each variable in terms of the most recent information, and that's ok (as long as there's nothing very much older than 2 years....).

Response to Charge Questions:

1. Please comment on the concept of sustainability as an overarching conceptual framework for representing the relationships between indicators. Please also comment on the clarity by which the framework is depicted and discussed in the draft ROE and provide any recommendations to improve its description and intended purpose of representing the relationship between indicators?

The web page itself is a bit confusing in its draft form. Since I am very positive about many of the features as well as information in the new ROE, I hesitate to start right off with negative comments, but in fact, there is no evidence at all that Sustainability is the overarching framework unless you happen to click on the conceptual framework link that is in little letters on the right. The separate links at the top, with Sustainability as just one of them, suggests that sustainability is an element of the ROE, not an overarching framework.

It just needs to be communicated better, and maybe more to the point, designed better.

2(a). Please comment on the adequacy by which sustainability has been incorporated into the ROE. More specifically, please comment on the descriptions and explanations for the sustainability theme, question, and the four associated indicators.

As I say above, it's not clear given the design of the page, how sustainability has been incorporated, but it's in all the information if one digs around enough. The little links to the right are ok, but too long in text. There should be something on the very first page that says something like: How Sustainable is Human Resource Consumption Relative to the Environment and Natural Resources Availability? Then on the HOME page, a diagram of the sustainability framework, with way way way less text.

It is not evident at all that Sustainability is an overarching framework, but consistently appears more as an element.

2(b). Please address the utility of the four new sustainability indicators for informing the reader on the intensity of resource consumption and the relevance of these intensity metrics.

My own preference would be to use those resource consumption data under each of the other categories and leave Sustainability as the overarching framework, not a separate tag.

Waste production is not quite resource consumption. The ideas aren't really melding very well, but the data are interesting.

2(c). EPA is anticipating expanding the sustainability theme with additional questions and indicators in future ROEs. Please provide any specific recommendations on additional sustainability topics, indicators, and extant data sources that are important to pursue. Please provide your rationale for prioritizing additional topics and indicators.

There are two additional categories that I think really need inclusion. First, there is the Stuff We Consume That Generates Waste. This is key to thinking about sustainability, and the environment. Plastics, for instance are critical not only to waste but also to fossil fuel usage, and the US has done some things recently to enhance sustainability that are interesting w/r to plastics consumption. There are other categories as well: paper consumed (has the internet media reduced this?); styrofoam consumption (have new products that are recyclable offset this, one might ask?); and many others. Indicators of recycling relative to that Stuff would be fascinating.

Next, I realize that all the food/crops information is under a different agency, but it's really, really relevant to the environment and to sustainability. There are many indicators that could be reported here, that are very important. Food produced, amount of localness, amount of "organic" or low-input agriculture, amount of fertilizer produced, amount of average transportation, amount of pesticides and herbicides produced and used, etc etc. These are critical components to sustainability and the environment.

3. Please comment on the approach used to incorporate statistical information into the 2014 ROE. Please provide any recommendations to enhance the presentation, including the clarity in describing uncertainty.

The links to technical descriptions are great. Every now and then, a trend analysis could be done and presented.

Comments from Dr. Joel Ducoste

1) Were the charge questions to the committee adequately addressed?

Yes overall.

In Charge question 1 on page 5, I agree that the images below the boxes are not necessarily helpful and that additional explanatory text should be included for the different boxes in the sustainability framework diagram. However, I would also like to see the report include an explanation of the flow/connections leading to and from these different boxes. Some users of the report may assume that these connections are the only interactions between these boxes.

Tradeoffs from a systems perspective are difficult to describe from just the addition of text. You may have to include an additional figure to really understand how these tradeoffs interact.

In Charge question 2a, I agree with the response that the sustainability concept is not properly incorporated into the ROE. Moreover I agree that the indicators are not linked to the sustainability framework. While the current framework only lists indicators in tables associated with themes and questions, I think a better visual approach is needed that helps the user link these indicators to sustainability concept shown in Figure 1. It should be stressed where possible that visual representation that then is backed up with explanatory text will provide the user with an easier time to digest the information and make use of it.

In terms of selecting indicators that answer sustainability questions that are of interest to users, the report needs to be clear about suggesting more specific questions that are not vague. These questions may not be something generated by the users unless they have significant expertise. It's possible that questions posed by a concerned user may have to be guided or linked to key words that will lead the user to indicators that will provide the data. The report may want to consider adding keyword suggestions that will help the user formulate specific questions.

I agree that the website needs to communicate relationships or linkages between the different indicators so that potential tradeoffs can be assessed. However, it should be explicitly stated that examples of specific relationships/linkages should be provided to help guide the user. The website allows the user to download images already created with a brief report. A similar type of relationship/linkage graph would need to be produced.

In charge question 2b, I agree that there may be significant differences between national and regional scale indicator data sets particularly with freshwater and energy related data. However, my concern will be the challenge in maintaining the current data for both regional and national scales. I am already concerned about data management for the website at the national scale. While I understand that the national scale data may not be as informative at the regional or state level, data management and upkeep will significantly increase. In addition, reports that have been produced for the national scale will also have

to be produced for the regional scale. This upkeep may be very challenging. If data is not maintained, users will find the website obsolete. I know data upkeep is mentioned in the report in response to Charge question 4. It really needs to be stressed throughout.

In charge question 2c, I'm concerned about defining indicators of resistance and resilience. This topic may be difficult to properly quantify. The measure of biodiversity does not necessarily suggest a high degree of resistance or resilience. It will depend on the chemical compound/toxic element. While I understand the need to assess resistance/resilience, I don't think it would be a good idea to utilize a parameter that may not consistently report the extent of resistance/resilience.

In charge question 5 (a & b), for the individual indicator levels, there should be a slight change in modified layout on pages 31 and 32. I believe levels 6 and 7 should be reversed. I think documentation would be more beneficial to a user before diving into the data sources and references. The color for the levels shown in Figure 3 should have a legend that helps explain the expertise required for each level.

In charge question 6 on page 34, the report states that the EPA receives data infrastructure needs and the last report was from 2002. However, ASCE develops a report card on the state of the US infrastructure (<http://www.infrastructurereportcard.org/a/#p/home>). It's possible that the ROE website could access the information from ASCE to quantify the state of the nation's infrastructure.

2) Are there any technical errors or omissions or issues that are not adequately dealt with in the draft report?

No.

3) Is the draft report clear and logical?

For the most part. However, there are places where the document could be clearer. See below:

- 1) On page 12 line 40, remove the word "more" and revise the start of the sentence as "To effectively convey...."
- 2) On page 13 line 1, please explicitly state what the word "This" refers to
- 3) On page 14 line 27, replace the word "this" with "the linkage of resource use"
- 4) On page 14 line 39, add the word "discussion" after the word "this"
- 5) On page 16 line 40, replace the word "this" with "These sustainable practices could...."
- 6) On page 18 line 10, remove the words "in order".
- 7) On page 18 line 23, replace the word "this" with "These sustainability tab indicators...."
- 8) On page 21 line 16, replace the word "this" with "these word representation of probability...."

- 9) On page 26 line 2, switch the order of the words “all are” to “are all”.
 - 10) On page 26 line 20, rewrite the sentence starting “This is presented...” With the following: “Although the draft report is dated 2014, the most recent data for some...”
 - 11) On page 28 lines 38-42 the sentence is very long. One possible suggestion for replacement is as follows: “The greatest need, therefore, is to learn how the ROE could better engage and serve the needs of more general public audiences. In particular, it should address the people who are concerned about the state of the environment and related public health issues, but who do not have the technical expertise or experience to find their way to the particular indicators relevant to their concerns.”
 - 12) On page 29 line 20, replace the words “likely works well enough” with “may be sufficient”
 - 13) On page 29 line 22, remove the words “will be”. Also on the same line, replace the words “find their way to” with “access”
 - 14) On page 29 lines 39-41, rewrite the sentence starting with the word “After” as follows: “After a user selects and explores one of the indicators from a selected issue framework diagram, there is no clear path for getting back to the issue diagram to consider other indicators.”
 - 15) On page 30 line 2, remove the words “as it could and should be”
 - 16) On page 30 line 5, remove the words “well enough”
 - 17) On page 33 line 31, replace the word “This” with “The framework for updating indicators will be....”
 - 18) On page 34 line 1, replace the words “what they already have” with “the current information”.
 - 19) On page 34 line 7, place the word “further” with “additional”. On line 8, remove the word “further”
- 4) Are the conclusions drawn or recommendations provided supported by the body of the draft report?**

Yes, overall

Comments from Dr. Joel Ducoste

Comments from Dr. Madhu Khanna

The SAB report provides a thorough assessment of strengths and weaknesses of EPA's Report on the Environment. In general the charge questions have been addressed very well.

Under Charge Question 1, I agree with the suggestion in the SAB report for more elaboration of the conceptual framework underlying the ROE and the need for more discussion of the economic and social dimensions of sustainability as they relate to the various indicators as well as for bringing out the issue of trade-offs more clearly. I would suggest however that the SAB report provide more clarifications and examples on the notion and type of trade-offs that should be discussed in the ROE. The example of the trade-off between hydropower as a source of renewable energy and its impact on hydrological flow provided in the ROE is useful. But it should be clarified that these trade-offs are not limited to being between environmental impacts only and could be between economic impacts and the environment. Some discussion, for example, about the trade-off between clean energy and low cost energy or between costs and benefits of environmental protection between current generations and future generations could be added to the conceptual framework. Additionally, some discussion of popular beliefs about tradeoffs - economy vs the environment or jobs vs the environment etc could also be included with examples to show that these are not always the case. The SAB report could provide some more guidance to the EPA on the scope of the trade-off discussion that should be included.

In addition to the importance of considering life-cycle impacts when assessing sustainability of various choices, it is also important to include considerations about the costs and benefits of these choices. Cost benefit analysis can also be used to illustrate the trade-offs we face when making decisions about the type of resources to use and the level of environmental protection to seek. Cost benefit analysis can also mentioned in the conceptual framework as another tool to assess sustainability.

Another aspect that should be discussed in the conceptual framework is the importance of environmental regulations to achieve sustainability and that environmental sustainability is unlikely to be achieved by itself. In looking through the ROE website, I noticed that the diagrams for the six specific issues include an arrow for relevant environmental regulations. I would suggest that the conceptual framework include more discussion of the role and importance of these regulations and links to sources of more information on them. A similar arrow for the role of environmental regulations could be added to Figure 1 in the SAB report from the economy to the environment because they can influence the amount of runoff, waste etc generated by the economy.

I agree with the need for more consistency in the definition of sustainability across various EPA sites. In my view, however, the definition on the ROE site ("ability to maintain or improve standards of living without damaging or depleting natural resources for present and future generations") is preferable to the alternative one suggested in the SAB report "Sustainability creates and maintains the conditions under which humans and nature can exist in productive harmony..."). The first definition encompasses the economic and social dimensions (through the goal of improving standards of living for all) while at the same time providing a more operational aspiration of preserving the environment/resources at some current state while the second one although broad is also more vague and has less operational content.

Under Charge Question 2a, I agree with the need to improve the interpretability of the raw data provided. I would suggest adding that the ROE provide data in a form that users may be able to

relate to better such as energy use per capita or greenhouse gas emissions per capita or per kilowatt hour (for electricity).

Under Charge Question 2c, the suggestion to consider measures of Green GDP is appropriate. But it should be recognized that there are no well-developed methods currently to compute green measures of GDP that account for loss in natural capital. The following reports discuss this issue and efforts in this direction by other countries and by UNEP

This one is from Australia --

[http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/9240F3B9C3E389BDCA257CAE0013A001/\\$File/46550_2014.pdf](http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/9240F3B9C3E389BDCA257CAE0013A001/$File/46550_2014.pdf)

Policy brief on this issue from Canada,

<http://www.iisd.org/publications/why-we-dont-really-measure-natural-capital-really-should>

A more academic report from Inclusive Wealth Report group

<http://mgiep.unesco.org/wp-content/uploads/2014/12/TWR2014-WEB.pdf>

Comments from Dr. Francine Laden

1. Were the original charge questions to SAB Standing or Ad Hoc Committees adequately addressed?

The original charge questions were adequately addressed. The committee provided a very extensive review of the sustainability theme in the ROE (Charge questions 1 and 2), backed up by suggestions and examples. Defining “sustainability” is crucial given the current emphasis on it in terms of strategic planning and stated goals of the agency. Charge question 3 addressed “statistical information” – the committee adequately addressed this issue, acknowledging the challenges of presenting information on this topic for a broad audience. Charge question 4 and 5 focused on the “web based product” and “communication”, respectively – two themes that are intertwined. The committee adequately addressed these issues and provided good recommendations for the ROE going forward.

2. Are there any technical errors or omissions in the report or issues that are not adequately dealt with in the Committee’s report?

I am not aware of any technical errors or omissions. One suggestion might be for more attention and review to be given to the “frequently asked questions” page. In my quick review of the website, I found this useful. The Committee could comment on this page, particularly when addressing question 5 about communication. The Committee mentioned the advantages of the web based ROE in that it can be updated easily. However, it was not clear if the Committee had recommendations for this updating process in terms of frequency and/or if a key change in current knowledge or discovery was made. This was not specifically in their charge – but it does relate to the usability and utility of the website as well as allocation of EPA resources.

3. Is the Committee’s report clear and logical?

Yes – The Committee report is clear and logical.

4. Are the conclusions drawn or recommendations provided supported by the body of the Committee’s report?

The conclusions and recommendations from the body of the Committee report were well summarized in the bullet points at the end of each section. One suggestion is that a summary of the criticisms of the “Where You Live” tab be included in the executive summary. I would anticipate that for many users this topic would be of interest, and the current non-specificity of the data and the misleading promises of the tab (it really does not provide state specific information) are frustrating. The Committee provides a good review of this “Communication” flaw; it should not be omitted from the Executive Summary.

Comments from other SAB Members

Comments from Dr. George Alexeeff

Were the original charge questions adequately addressed?

There are 6 charge questions presented to the panel in the following areas:

- Charge Question 1. Sustainability as the ROE 2014 Conceptual Framework
- Charge Question 2. Sustainability Indicators
- Charge Question 3. Statistical Information
- Charge Question 4. ROE 2014 Web-based Product
- Charge Question 5. Communication
- Charge Question 6. Additional Indicator Recommendations

Each of the charge questions was systematically addressed. The panel's comments in the draft document were very insightful and on point.

Regarding sustainability as a conceptual framework, the panel concluded that it will be a worthwhile addition to the ROE when the framework is more fully implemented. A major concern raised by the panel is that sustainability has not been sufficiently integrated into the ROE; several recommendations for doing so are presented, including discussing sustainability as a goal and over time providing indicators that can be used to assess whether sustainability has been achieved.

The panel's report emphasizes the need to develop a consistent definition of sustainability across the agency, since the definition provided varies from others available on the EPA website. They also discussed the relationship among indicators and stressed the need to develop additional ROE indicators for economy and society pillars of sustainability.

The panel's report commented on a number of points regarding clarity of framework. One refers to developing a consistent definition of the term sustainability. Another refers to making changes to the diagrams used as well as their descriptions.

The panel's report also comments that the examples of the six issue frameworks while helpful require further integration.

Regarding sustainability indicators, the panel's report discusses the need for the indicators to provide explicit references to sustainability and to address likely sustainability questions relevant to the indicator.

Are there any technical errors or omissions in the report or issues that are inadequately dealt with in the Panel's report?

I offer the additional suggestions to be considered for the panel's report.

On page 1 (5, 7, 8, etc.) of the panel's report and elsewhere it refers to the "goal of sustainability." However, sustainability is not strategic goal of EPA. The five major themes in earlier ROEs corresponded to EPA's five strategic goals. EPA's latest (2014-2018) strategic plan retains the five goals, and adds "working toward a sustainable future" as a "cross-agency strategy", intended to "fundamentally change how we work." Hence, unlike the other five thematic areas, it does not appear that EPA explicitly considers sustainability a goal—as suggested by the panel's report—but rather an underlying principle governing the agency's decisions and actions (see page 48 of the *Strategic Plan*, http://www2.epa.gov/sites/production/files/2014-09/documents/epa_strategic_plan_fy14-18.pdf). The Plan envisions integrating sustainability into the agency's operations: to conserve, protect, restore and improve the supply and quality of natural resources and environmental media over the long term; to align programs to achieve as many positive outcomes as possible in the three pillars; and to consider full life cycles in order to prevent pollution, reduce waste and create a sustainable future. At least in the short term, it seems appropriate for EPA to explicitly recognize and discuss how indicators in the other thematic areas contribute toward these desired purposes. Thus, there may need to be some changes in the report regarding references to the goal of sustainability.

A point related to the recommendations on page 8, lines 8-14 is that the description (at <http://cfpub.epa.gov/roe/frameworks.cfm>) of the interrelationships among the three systems represented in the sustainability framework—environment, economy and society—discusses what each system provides or supplies to the other two, but does not acknowledge how each is impacted by the others' outputs. This results in some one-sided understanding of the interrelationship among the pillars. For example, the economy can improve the quality of life and well-being of society, and can impact human health positively (e.g., by providing the financial resources to support access to health care, good education, and to provide innovative tools to reduce pollution and exposures. However, the diagram (and the panel's discussion of trade-offs) focusses on the economy's impact on human health as a negative (e.g., by causing harmful exposures).

The panel's report suggests that there are no "societal" indicators of sustainability (page 8, lines 15-17) in the ROE. However, the indicators under "Human Exposure and Health," particularly the health status indicators, can be considered "societal" indicators of sustainability.

The panel's report should consider that one way by which sustainability can be better integrated into the ROE would be to include in the indicator a discussion of the role that the indicator plays in overall sustainability, including the ability of a resource to supply food, or serve cultural or recreational purposes (both economic and societal benefits). For example, in the ROE the introduction to the indicator "nitrogen and phosphorus in large rivers" or "nitrogen and phosphorus in wadeable streams," discusses how excess nutrients promote algal growth and the results adverse impacts on water quality and aquatic health can be expanded to discuss how these can affect fishing, or preclude the use of such water bodies for swimming and certain cultural/tribal practices.

Another suggestion on how to improve integrating sustainability into the ROE (page 10, lines 7-10) is to integrate considerations of economic and societal impacts under a narrative section that describes the importance of each indicator. The ROE could address the importance of each indicator, not only in terms of its role in the environmental system, but also in terms of economic and societal benefits.

Consistent with its stated desire of integrating sustainability in its day to day operations, EPA can highlight how certain approaches, such as reuse or recycling of solvents, metals and other hazardous waste, or reliance on integrated pest management practices represent more sustainable alternative to disposal or traditional pesticide use, respectively.

Is the Panel's draft report clear and logical?

I agree with their recommendations and thought their recommendations will be extremely helpful in improving the ROE 2014.

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Are the conclusions drawn or recommendations provided supported by the body of the Panel's report?

The SAB makes many excellent points in their recommendations. The conclusions are well-supported by the body of the panel's report. The section on communicating to technical and non-technical audiences was of particular interest.

Comments from Dr. Joseph Arvai

1. Were the charge questions adequately addressed?

Yes

2. Are there are any technical errors or omissions in the report or issues that are not adequately dealt with in the draft report?

No

3. Is the draft report clear and logical?

Yes

4. Are the conclusions drawn or recommendations provided supported by the body of the draft report?

Yes.

Comments from Dr. Thomas Burbacher

Were the original charge questions to SAB Standing or Ad Hoc Committees adequately addressed?

The first 4 charge questions are focused on issues related to the concept of sustainability as an overarching conceptual framework for the report. There are numerous recommendations to strengthen the sustainability focus of the report that adequately address these charge questions. The last 3 charge questions are focused on various aspects of the report including how statistical information is incorporated into the report, the transition of the report into a Web-based product and the adequacy of the report in communicating to technical and non-technical audiences. The recommendations to better define the target audiences for the report, restructure the report so it is easier to navigate and users can more easily find answers, and improve accessibility for stakeholders adequately address these charge questions.

Are there any technical errors or omissions in the report or issues that are not adequately dealt with in the Committee's report? I did not see any technical errors or omissions in the report.

Is the Committee's report clear and logical? The committee's report and recommendations address the charge questions in a clear and logical manner.

Are the conclusions drawn or recommendations provided supported by the body of the Committee's report? The conclusions and recommendations are strongly supported by the body of the report.

Comments from Dr. Costel Denson

General Comments

The letter to the Administrator is extremely well written. The thoughts are clear and unambiguous in the development of the path forward. The recommendations are sound, and presented in a way that they can be readily implemented.

1. Were the original charge questions to SAB Standing or Ad Hoc Committees adequately addressed?

Yes

2. Are there any technical errors or omissions in the report or issues that are not adequately dealt with in the Committee's report?

None. The report is quite comprehensive.

3. Is the Committee's report clear and logical?

Yes. The report is extremely well written.

4. Are the conclusions drawn or recommendations provided supported by the body of the Committee's report?

Yes.

Comments from Dr. David Dzombak

I commend the panel on a thorough evaluation that is responsive to the charge, and for a well written and well organized report. The clarity of the report and the specific advice offered will be valuable to the EPA in some revisions of ROE 2014 and in their continuing work to improve the Report on the Environment.

The comments provided and recommendations for improvement are extensive. I participated in review of the draft Report on Environment 2007. This is an ongoing effort of the Agency, and a continuing work in progress. It is a very large and complex effort. The complexity of the effort is magnified by the continuously evolving science of sustainability. The SAB has weighed in with comments on the ROE report as written, and with many comments on how the ROE effort can be improved in response to the evolving science of sustainability. In general, the SAB report does not make clear which suggestions and recommendations are for the future, and which should be implemented before ROE 2014 is released. Without this clarification, the release of ROE 2014 could be delayed for a very long time. Thus, my primary comment is that the SAB report clarify which suggestions and recommendations are for immediate implementation in ROE 2014, and which are for the long-term improvement of the Report on the Environment effort.

1. Were the original charge questions adequately addressed?

Yes, the original charge questions are addressed adequately.

2. Are there any technical errors or omissions in the report or issues that are not adequately dealt with in the Panel's report?

I found no technical errors or omissions.

3. Is the Panel's draft report clear and logical?

The draft report is well written and well organized. It responds to the charge questions systematically and with specificity. As per my overarching comment above, I recommend that the SAB report clarify which suggestions and recommendations are for immediate implementation in ROE 2014, and which are for the long-term improvement of the Report on the Environment effort.

- (a) The Letter to the Administrator is well written and summarizes a number of key recommendations in the report. It is fairly concise at less than three full pages in length. In the last paragraph of the letter to the Administrator, it is stated that "the SAB recognizes that resources may limit the EPA's ability to greatly expand the scope of the ROE and recommends that the agency give highest priority to identifying and implementing indicators that provide insights into sustainability. Modest restructuring of the ROE website also could be accomplished to enhance its utility for a broader public audience." This paragraph is the only indication in the Letter that perhaps not all recommendations listed need to be implemented for ROE 2014. I recommend that after

the draft SAB report be re-examined and revised to make clear what should be implemented in ROE 2014 and what are recommendations for the future, that the Letter then be revised to present immediate recommendations for ROE 2014 (as outlined in the current concluding paragraph of the Letter) and the most important recommendations for the ongoing development of the ROE.

- (b) The last section of the Letter to the Administrator is titled “Enhance the ROE for public audiences”. In the body of the report (p.29), it is recommended that the web site be restructured with different pathways for scientific professionals and for the public. This does not come across in the Letter. This is an important suggestion for long-term improvement of the ROE (not necessarily for ROE 2014) that should be noted in the Letter and in the Executive Summary
 - (c) The readability, organization, and impact of the Executive Summary could be improved with the addition of subsection headings.
 - (d) The discussion of intended audiences in paragraph 2 of page 2 of the Executive Summary seems internally inconsistent. It is stated that the purpose of the ROE for multiple intended audiences is appropriate, but then it is stated that priority audiences are not identified by the Agency. This suggests that the intended audiences have not been properly identified in the stated purpose.
 - (e) On pages 7-8 of the draft SAB report, the SAB recommends that EPA expand discussion of “trade-offs” in the ROE. I suggest that these recommendations be re-evaluated. Should EPA in the ROE be promoting the notion, in the framework of sustainability, that environmental quality can only be achieved at the cost of degraded economic or social metrics?
4. Are the conclusions drawn or recommendations provided supported by the body of the Panel’s report?

The findings and recommendations presented in the Letter and in the Executive Summary are adequately supported in the body of the report. As per my overarching comment above, I recommend that the SAB report clarify which suggestions and recommendations are for immediate implementation in ROE 2014, and which are for the long-term improvement of the Report on the Environment effort.

Comments from Dr. Elizabeth Matsui

1. Were the original charge questions adequately addressed? YES
2. Are there any technical errors or omissions or issues that are not adequately dealt with? NO
3. Is the committee's report clear and logical? YES
4. Are the conclusions drawn or recommendations provided supported by the body of the Committee's report? YES

Comments from Dr. Surabi Menon

1) Were the charge questions to the committee adequately addressed?

Yes, the review has addressed all the charge questions adequately.

2) Are there any technical errors or omissions or issues that are not adequately dealt with in the draft report?

The report does a good job of outlining drawbacks in the report, suggesting recommendations and where applicable stating areas of improvements in the report. Given the issues raised in not identifying economic dimensions thoroughly in the three pillars of sustainability (the suggestion was that the framework diagram suggested all economic activity was bad for the environment), I thought it would have been helpful to provide more examples of useful economic indicators that do not have negative impacts on the environment. Examples recommended were green jobs and GNP. Perhaps better indicators could be distilled from recent reports such as from the New Climate Economy (2014) and from the OECD's Green Growth Indicators 2014, report.

3) Is the draft report clear and logical?

Yes, the report is presented in a clear and logical manner. It offers useful insights into incorporation of statistical information. The report also had excellent recommendation on improvements needed for the communication aspect, especially in the effort needed to reach target audiences. This is relevant to demonstrate value to the public.

4) Are the conclusions drawn or recommendations provided supported by the body of the draft report?

All the recommendations are well supported in the draft report.

Comments from Dr. James Opaluch

1. Were the charge questions adequately addressed?

Yes

2. Are there are any technical errors or omissions in the report or issues that are not adequately dealt with in the draft report?

No

3. Is the draft report clear and logical?

Yes

4. Are the conclusions drawn or recommendations provided supported by the body of the draft report?

Yes

Comments from Dr. Amanda Rodewald

- 1) Were the charge questions to the committee adequately addressed? Yes
- 2) Are there any technical errors or omissions or issues that are not adequately dealt with in the draft report? No
- 3) Is the draft report clear and logical? Yes
- 4) Are the conclusions drawn or recommendations provided supported by the body of the draft report? Yes

Comments from Dr. Gina Solomon

1. Were the original charge questions to SAB Standing or Ad Hoc Committees adequately addressed?

Yes, the charge questions are clearly addressed, with useful and well-organized discussions of each question and clearly-presented recommendations.

2. Are there any technical errors or omissions in the report or issues that are not adequately dealt with in the Committee's report?

Not that I found.

3. Is the Committee's report clear and logical?

Yes, the flow is logical and the report is clearly presented.

4. Are the conclusions drawn or recommendations provided supported by the body of the Committee's report?

Yes.

Comments from Dr. Daniel Stram

1. Were the original charge questions to SAB Standing or Ad Hoc Committees adequately addressed?

Overall the charge questions have been answered in detail, regarding question 1, there is less said about the value of the concept of sustainability for the ROE than on its implementation, however the charge question is not clear on whether an overall discussion of the value of the concept to the ROE was really being requested. The discussion of implementation seems thorough, many suggestions are made, but the report also indicates that the release of the ROE website should not be delayed too long. Further prioritizing of suggestions into those that ought to be undertaken immediately versus those that can be considered in future updates. For example the discussion of the need to “reframe the 24 questions” is very light. The main thing that seemed to be wrong with them (from my quick look) is that many questions that include the phrase “... and their effects on human health ...” in their text have no linked indicators on health effects. No indicators on human health are provided except in the three questions directly addressing Human Exposure and Health.

2. Are there are any technical errors or omissions in the report or issues that are not adequately dealt with in the Committee’s report?

The report seems to be very thorough

3. Is the Committee’s report clear and logical?

Generally so

4. Are the conclusions drawn or recommendations provided supported by the body of the Committee’s report?

The recommendations are all supported by the body of the report as I read them

Comments from Dr. Jeanne VanBriesen**Were the charge questions to the committee adequately addressed?**

Yes. The report provides particularly good feedback on sustainability as a conceptual framework. Other charge questions are also adequately addressed.

Are there any technical errors or omissions or issues that are not adequately dealt with in the draft report?

None noted.

Is the draft report clear and logical?

Yes, the report is clear and logical.

The recommendation to ensure the definition of sustainability is consistent with the framework and consistent throughout the ROE is very important. There are some places in the report where discussion of this important recommendation could be improved. For example, on page 6, lines 17-19, the distinction between sustainability as a condition and progress toward sustainability should be elaborated upon. Is the idea of being in transition toward sustainability really what is meant here? Or, should the SAB focus here and elsewhere on quantitative assessment of sustainability or of relative sustainability, where two potential choices or end states could be compared along sustainability dimensions. Few systems would currently be considered sustainable, while most would be in some state that could be considered in transition toward sustainability. How close to sustainable is more relevant than the fact that something is on its way. This is discussed further on page 7, and consistency between these sections should be improved. Page 10 discusses sustainability transitions, which could be introduced sooner to provide this consistency.

Are the conclusions drawn or recommendations provided supported by the body of the draft report?

Yes, the report recommendations and conclusions drawn are supported by the report. A significant amount of additional work is recommended to make the ROE and its web interface demonstrate relevance and utility for its multiple audiences. The importance of this work being undertaken during a time of reduced resources for the agency should be made more clear in the report and the executive summary. The prioritization included for development of new ways to provide the information to the public is a good start.

Comments from Dr. John Vena

1) Were the charge questions to the committee adequately addressed?

Yes

2) Are there any technical errors or omissions or issues that are not adequately dealt with in the draft report?

No errors or omissions that I am aware of and the panel has effectively responded to the charge questions

3) Is the draft report clear and logical?

I agree with the panel that the agency does not appear to have determined and defined with any degree of precision. I also agree with the recommendation to state which of the audiences should be the primary audience and which should be secondary. The needs of the different audiences-- what questions they may have and their level of scientific sophistication—will likely differ and the current ROE format does not seem optimal for any of the intended audiences. The panel recommends that it could be more closely tailored to the primary audience, perhaps with alternative navigation pathways but it would be good to include examples or more specific tactics for secondary audiences. Good idea for navigation pathways for different users.

I agree that the product should be more widely available to all potential user groups, including users (environmental justice communities and others who may lack robust internet access. A downloadable overview document with an integrated summary of ROE indicators and trends that would help achieve this goal is a fantastic recommendation.

The second definition of sustainability is broader and more consistent with the framework diagram that emphasizes the three pillars of sustainability. I agree that a consistent definition, presented and highlighted early in the ROE website, is critical to ensuring that the conceptual framework is understood by the user.

The panel states that it would be helpful to explore relationships between indicators to get more insight with respect to factors that co-vary or that may be independent of each other. I agree that it is not the of the the ROE to do a more rigorous analysis of uncertainty. The panel should consider recommending the development of a tool for the web so that users can do analysis of multiple indicators, or develop a RFA for investigators to use the web based data to generate analyses for posting on the web in conjunction with community stakeholders.

4) Are the conclusions drawn or recommendations provided supported by the body of the draft report?

YES

Comments from Dr. Charles Werth

1. Were the original charge questions to SAB Standing or Ad Hoc Committees adequately addressed?

Yes, the charge questions to the SAB were adequately addressed in the report.

2. Are there any technical errors or omissions in the report or issues that are not adequately dealt with in the Committee's report?

Overall I find the report technically correct.

In several locations (e.g., executive summary, recommendation for charges 1 and 2a) the recommendation is made to provide sufficient context from which to judge whether the goal of sustainability has been met, or under what conditions the goal would be met. There are typically methods in the literature to identify whether one trade off is more sustainable than another, or to identify if sustainability is increasing/decreasing, but for the majority of indicators there is not a baseline value for comparison to say if the goal of sustainability has been met. Should this recommendation should be explicitly presented as long-term goal, with the caveat that more research is necessary before it can be realized.

The following statement is made in section 3.2.3: "In addition, none of the four indicators included under the Sustainability theme (energy use, freshwater 12 withdrawals, hazardous waste, municipal solid waste) provide direct insight into sustainability." While I agree that these indicators can be improved to better reflect sustainability, I wonder if this statement is a bit overstated. I think these indicators can provide insight into sustainability if put into the proper context. For example, decreasing amounts of municipal solid waste can indicate that the nations solid waste generation is becoming more sustainable.

3. Is the Committee's report clear and logical?

Overall I find the report very clear and logical. One potential issue regarding clarity is that there are so many recommendations, it's difficult to know which ones to address. While some short-term recommendations are given, this is not done in a systematic manner. Could each recommendation section be organized into short-term and long-term recommendations, where the latter require extensive data collection, data interpretation, or additional research. Another potential issue regarding clarity is the suggestion to identify primary and secondary users of the report (section 3.5.1). This is followed by the recommendation to structure the report so that different users can access different levels of the report. This latter recommendation implies that the intended users are all primary users.

4. Are the conclusions drawn or recommendations provided supported by the body of the Committee's report?

