

Forest Monitoring and Improvement Program

State-wide evaluation questions – methods statement

- This paper describes how the Commission developed the state-wide evaluation questions <https://www.nrc.nsw.gov.au/forest-monitoring>
- Four steps:
 1. Develop criteria to identify information needs
 2. Identify information needs
 3. Distil into evaluation questions
 4. Seek steering committee endorsement

Step 1 - Develop criteria to identify information needs

- The Commission established the criteria table to identify information needs (Table 1).
- Table 1 also lists the primary information sources.

Table 1 Criteria to identify information needs

Comment	Primary information source
Criteria 1 - The information need meets an existing government commitment to collect, evaluate and report specific information for ESFM targets or outcomes	
<ul style="list-style-type: none"> ▪ Ensures NSW and Australian Governments commitments to monitor and evaluate specific and information needs, and targets are met. ▪ Information needs could relate to social, economic or environmental trends over time, the effectiveness of management or policy or research. 	<ul style="list-style-type: none"> ▪ NSW Forest Management Framework. ▪ Joint NSW and Australian government response to the independent review of RFAs. ▪ Premier’s terms of reference. ▪ Regional Ecologically Sustainable Forest Management (ESFM) plans. ▪ NSW commitments for Coastal IFOA and other IFOAs.
Criteria 2 - The information need is important to both stakeholders and community	
<ul style="list-style-type: none"> ▪ Ensures the community and stakeholder preferences are considered and addressed where feasible. ▪ Reliable and best available information and research should be sourced. ▪ Information needs could relate to social, economic or environmental trends over time, the effectiveness of management or policy or research. 	<ul style="list-style-type: none"> ▪ NSW forest monitoring project: stakeholder and public views about forest monitoring.¹ ▪ Submissions to program framework and feedback at regional forums.
Criteria 3 - The information need is timely and relevant for adaptive learning and management	
<ul style="list-style-type: none"> ▪ Ensures the steering committee is responsive to state-wide or regional system shocks/significant events and capitalises on opportunities to learn and adapt. ▪ Community and decision makers demonstrate need for information that impacts ESFM outcomes. 	<ul style="list-style-type: none"> ▪ Steering Committee

¹ For example, Schirmer, J., Mylek, M., and Clayton, H., 2019. ‘NSW forest monitoring project: Stakeholder and public views about forest monitoring, September 2019’. Report prepared for the NSW Department of Primary Industries.

Step 2 - Identify information needs

- **Table 2** describes government, stakeholder and community information needs for ecologically sustainable forest management.
- Primary information sources included:
 - reviewing 'knowledge need' commitments made by the NSW and Australian Government for Regional Forest Agreements²
 - reviewing research³ and feedback from community and stakeholders⁴ on their information needs
 - maintaining a watching brief on any emerging or significant events.

Table 2 Government, stakeholder and community information needs

ESFM outcomes	Information needs
1. Conservation of biological diversity	1. Biodiversity – specifically habitat features, species occupancy and persistence, species-specific monitoring; rare, threatened and all native fauna and rare and threatened native flora. 2. Conservation values – within the Comprehensive Adequate and Representative (CAR) reserve system.
2. Maintenance of productive capacity of forest ecosystems	3. Sustainable timber and ecosystems – sustainability of yield/supply and regeneration. 4. Productive capacity of other forest-dependent industries – sustainability and future demands for tourism, recreation, apiary, carbon farming etc.
3. Maintenance of ecosystem health and vitality	5. Status of forests and forest health – specifically the decline in health or loss/change of forest area; forest regeneration, structure, fragmentation and connectivity; impact of climate change. 6. Fire - planned or unplanned. 7. Exotics and disease – specifically insect pests, pathogens, feral animal invasion.
4. Conservation and maintenance of soil and water resources	8. Water – quality, quantity and habitat. 9. Soil – health and stability.
5. Maintenance of forest contribution to global carbon cycles	10. Carbon – storage, contribution to global carbon and opportunities to enhance.
6. Maintenance and enhancement of long term multiple social-economic benefits to	11. Socio-economic uses, values and interests – socio-economic resilience of forest-based communities and industries; impacts associated with significant changes in forest tenure; ecological services of forests to communities.

² State of New South Wales and the NSW Environment Protection Authority – Joint Australian and NSW Government Response to the independent review of the report on progress with the implementation of the NSW RFAs for the second and third five-yearly reviews.

³ Schirmer, J., Mylek, M., and Clayton, H., 2019. 'NSW forest monitoring project: Stakeholder and public views about forest monitoring, September 2019'. Report prepared for the NSW Department of Primary Industries.

⁴ Including community feedback provided in response the draft program framework and regional workshops. Community feedback on RFAs and IFOAs was also considered.

ESFM outcomes	Information needs
meet the needs of society	12. Aboriginal uses, values and interests – current Aboriginal uses of forests, opportunities for Aboriginal socio-economic development, use of Aboriginal ecological knowledge to forest management.
7. Legal, institutional and economic framework for conservation and sustainable management	13. Effectiveness and efficiency of legal, institutional and economic frameworks – including coordination of agency processes and activities including governance, budgets and research 14. Transparency and accountability of legal, institutional and economic frameworks – on forest programs/ commitments to deliver RFAs 15. Involvement of stakeholders and the community , including Aboriginal stakeholders – in forest management and decisions

Step 3 - Distil into evaluation questions

- The Commission distilled the information needs into working evaluation questions (Table 3)
- For example, the information needs on ‘status of forest health’ became the question “What is the extent, condition and health of NSW forests, and what are the predicted trajectories?”
- Most questions seek to explore the future trajectories of ecological, social, cultural and economic outcomes sought under ecologically sustainable forest management.

Table 3 Alignment between evaluation questions and information needs

Evaluation question	Information needs
1. What is the extent, condition ⁵ and health of NSW forests, and what are the predicted trajectories?	<ul style="list-style-type: none"> ▪ Status of forests and forest health – specifically the decline in health or loss/ change of forest area; forest regeneration, structure, fragmentation and connectivity; impact of climate change. ▪ Fire - planned or unplanned. ▪ Exotics and disease – specifically insect pests, pathogens, feral animal invasion.
2. What is the occupancy and distribution of forest-dependent fauna and flora species, and what are the predicted trajectories?	<ul style="list-style-type: none"> ▪ Biodiversity – specifically habitat features, species occupancy and persistence, species-specific monitoring; rare, threatened and all native fauna and rare and threatened native flora. ▪ Fire - planned or unplanned. ▪ Exotics and disease – specifically insect pests, pathogens, feral animal invasion.
3. Are forest water catchments healthy and what is the predicted trajectory for water availability and quality?	<ul style="list-style-type: none"> ▪ Water – quality, quantity and habitat. ▪ Fire - planned or unplanned.
4. What is the health and stability of soil in forests,	<ul style="list-style-type: none"> ▪ Soil – health and stability. ▪ Fire - planned or unplanned.

⁵ Condition is likely to be determined as a combination of forest composition, structure and function

Evaluation question	Information needs
and what is their predicted trajectory?	
5. Is timber harvested in a sustainable manner?	<ul style="list-style-type: none"> ▪ Sustainable timber and ecosystems – sustainability of yield/supply and regeneration.
6. To what extent are forests delivering sustainable social, cultural and economic benefits for people, and what are predicted trajectories?	<ul style="list-style-type: none"> ▪ Productive capacity of other forest-dependent industries – sustainability and future demands for tourism, recreation, apiary, carbon farming etc. ▪ Socio-economic uses, values and interests – socio-economic resilience of forest-based communities and industries; impacts associated with significant changes in forest tenure; ecological services of forests to communities.
7. To what extent are Aboriginal values, knowledge and people involved in forest management and decision making?⁶	<ul style="list-style-type: none"> ▪ Aboriginal uses, values and interests – current Aboriginal uses of forests, opportunities for Aboriginal socio-economic development, use of Aboriginal ecological knowledge to forest management. ▪ Involvement of stakeholders and the community, including Aboriginal stakeholders – in forest management and decisions
8. What is the carbon balance of NSW forests currently and under different scenarios?	<ul style="list-style-type: none"> ▪ Carbon – storage, contribution to global carbon and opportunities to enhance.
9. To what extent is the NSW Forest Management Framework delivering ESFM outcomes?	<ul style="list-style-type: none"> ▪ Conservation values – within the Comprehensive Adequate and Representative (CAR) reserve system. ▪ Effectiveness and efficiency of legal, institutional and economic frameworks – including coordination of agency processes and activities including governance, budgets and research ▪ Transparency and accountability of legal, institutional and economic frameworks – on forest programs/ commitments to deliver RFAs ▪ Involvement of stakeholders and the community, including Aboriginal stakeholders – in forest management and decisions

Step 4 – Seek steering committee endorsement

- The cross-agency steering committee endorsed the state-wide evaluation questions in late February 2020, after asking the Commission to independently consider:
 - harmonising potential post-fire assessment and monitoring with existing activities; and specifically consulting with the NSW Bushfire Management Research Hub
 - sharpening the focus areas to ensure effort on retrospective analysis, including mining existing data, forecasting and identifying system drivers.

⁶ All work under this evaluation question will consider and align to the NSW Aboriginal Cultural and Intellectual Property Protocol. The approach will promote co-design and Aboriginal leadership in governance, program management and delivery