

analyses may rely on quantitative, qualitative, and participatory methods for gathering and analyzing data. Social and economic information may be developed and analyzed through broad-scale assessments and local analyses (§219.5), monitoring results (§219.11), or other means. For plan revisions, and to the extent the responsible official considers to be appropriate for plan amendments or site-specific decisions, the responsible official must develop or supplement the information and analyses related to the following:

(1) Describe and analyze, as appropriate, the following:

(i) Demographic trends; life-style preferences; public values; land-use patterns; related conservation and land use policies at the state and local level; cultural and American Indian tribe and Alaska Native land settlement patterns; social and cultural history; social and cultural opportunities provided by national forest system lands; the organization and leadership of local communities; community assistance needs; community health; and other appropriate social and cultural information;

(ii) Employment, income, and other economic trends; the range and estimated long-term value of market and non-market goods, uses, services, and amenities that can be provided by national forest system lands consistent with the requirements of ecological sustainability, the estimated cost of providing them, and the estimated effect of providing them on regional and community well-being, employment, and wages; and other appropriate economic information. Special attention should be paid to the uses, values, products, or services that the Forest Service is uniquely poised to provide;

(iii) Opportunities to provide social and economic benefits to communities through natural resource restoration strategies;

(iv) Other social or economic information, if appropriate, to address issues being considered by the responsible official (§219.4).

(2) Analyze community or region risk and vulnerability. Risk and vulnerability analyses assess the vulnerability of communities from changes in ecological systems as a result of nat-

ural succession or potential management actions. Risk may be considered for geographic, relevant occupational, or other related communities of interest. Resiliency and community capacity should be considered in a risk and vulnerability analysis. Risk and vulnerability analysis may also address potential consequences to communities and regions from land management changes in terms of capital availability, employment opportunities, wage levels, local tax bases, federal revenue sharing, the ability to support public infrastructure and social services, human health and safety, and other factors as necessary and appropriate.

(b) *Plan decisions.* When making plan decisions that will affect social or economic sustainability, the responsible official must use the information analyses developed in paragraph (a) of this section. Plan decisions contribute to social and economic sustainability by providing for a range of uses, values, products, and services, consistent with ecological sustainability.

THE CONTRIBUTION OF SCIENCE

§219.22 The overall role of science in planning.

(a) The responsible official must ensure that the best available science is considered in planning. The responsible official, when appropriate, should acknowledge incomplete or unavailable information, scientific uncertainty, and the variability inherent in complex systems.

(b) When appropriate and practicable and consistent with applicable law, the responsible official should provide for independent, scientific peer reviews of the use of science in planning. Independent, scientific peer reviews are conducted using generally accepted scientific practices that do not allow individuals to participate in the peer reviews of documents they authored or co-authored.

§219.23 The role of science in assessments, analyses, and monitoring.

(a) *Broad-scale assessments.* If the Forest Service is leading a broad-scale assessment, the assessment must be led by a Chief Scientist selected by the

Deputy Chief of Research and Development. When appropriate and practicable, a responsible official may provide for independent, scientific peer review of the findings and conclusions originating from a broad-scale assessment. Independent, scientific peer review may be provided by scientists from the Forest Service, other federal, state, or tribal agencies, or other institutions.

(b) *Local analyses.* Though not required, a responsible official may include scientists in the development or technical reviews of local analyses and field reviews of the design and selection of subsequent site-specific actions.

(c) *Monitoring.* (1) The responsible official must include scientists in the design and evaluation of monitoring strategies. Additionally, the responsible official must provide for an independent, scientific peer review of plan monitoring on at least a biennial basis to validate adherence to appropriate protocols and methods in collecting and processing of monitoring samples and to validate that data are summarized and interpreted properly.

(2) When appropriate and practicable, the responsible official should include scientists in the review of monitoring data and analytical results to determine trends relative to ecological, economic, or social sustainability.

§ 219.24 Science consistency evaluations.

(a) The responsible official must ensure that plan amendments and revisions are consistent with the best available science. The responsible official may use a science advisory board (§ 219.25) to assist in determining whether information gathered, evaluations conducted, or analyses and conclusions reached in the planning process are consistent with the best available science. If the responsible official decides to use a science advisory board, the board and the responsible official are to jointly establish criteria for the science advisory board and the responsible official to use in reviewing the consistency of proposed plan amendments and revisions with the best available science.

(b) The science advisory board is responsible for organizing and con-

ducting a scientific consistency evaluation to determine the following:

(1) If relevant scientific (ecological, social, or economic) information has been considered by the responsible official in a manner consistent with current scientific understanding at the appropriate scales;

(2) If uncertainty of knowledge has been recognized, acknowledged, and adequately documented; and

(3) If the level of risk in achievement of sustainability is acknowledged and adequately documented by the responsible official.

(c) If substantial disagreement among members of the science advisory board or between the science advisory board and the responsible official is identified during a science consistency evaluation, a summary of such disagreement should be noted in the appropriate environmental documentation within Forest Service NEPA procedures.

§ 219.25 Science advisory boards.

(a) *National science advisory board.* The Forest Service Deputy Chief for Research and Development must establish, convene, and chair a science advisory board to provide scientific advice on issues identified by the Chief of the Forest Service. Board membership must represent a broad range of scientific disciplines including, but not limited to, the physical, biological, economic, and social sciences.

(b) *Regional science advisory boards.* Based upon needs identified by Regional Forester(s) or Research Station Director(s), the Forest Service Research Station Director(s), should establish and convene science advisory boards consistent with the Federal Advisory Committee Act (5 U.S.C. app.) to provide advice to one or more Regional Foresters regarding the application of science in planning and decision-making for National Forest System lands. At least one regional science advisory board must be available for each national forest and grassland. The Station Director(s) must chair the board or appoint a chair of such boards. The geographical boundaries of the boards need not align with National Forest System Regional boundaries. Board membership must represent a broad