FREP
N E W S L E T T E R

2006/07 Forest and Range Evaluation Program Quality Assurance and Quality Control Annual Report

Prepared by
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INTRODUCTION

This newsletter summarizes all quality-related resources and activities for the Forest and Range Evaluation Program (FREP) for the 2006/07 fiscal year. The report briefs the FREP working group on the achievement of the level 1 certification and the level 2 application with the National Quality Institute (NQI). The report explains how the resources were used to implement data quality management in FREP.

In section 3, the program's achievements on quality management are listed. Section 4 describes the specific controls and prevention processes. Section 5 gives the breakdown of resources used with data management, excluding the resources for the FREP Information Management System. Section 6 gives the current status of data quality project and proposed process flow, and interaction with the FREP Information Management System. In Section 7, the questions and answers forum is discussed. Finally, recommendations to continuously improve FREP are listed.

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BRITISH COLUMBIA
The Best Place on Earth

The FREP Mission:
To be a world leader in resource stewardship monitoring and effectiveness evaluations; providing the science-based information needed for decision-making and continuous improvement of British Columbia's forest and range practices, policies and legislation.

http://www.for.gov.bc.ca/hfp/frep/index.htm

RESOURCE ALLOCATION

The resources allocated to FREP quality management (QM), quality assurance (QA), and quality control (QC) for 2006/07 are presented in the following tables. Projected resources for 2006/07 were estimated based on the 2007/08 QM work plan.

PERSONNEL

	Person years		
	Projected 2006/07	Actual 2006/07	Project 2007/08
QA and QC coordinator	1.0	1.0	1.0
Data management coordinator	N/A	0.4	1.0
FREP quality management team	0.3	0.2	0.3
QA site visit	0.3	0.2	0.3
Stand-level biodiversity data validation	0.3	0.1	0.2
Riparian/fish data validation	0.3	0.1	0.2
Data cleaning and verification in FREP IMS	0.2	0.6	0.5
Question and Answer summary	0.1	0.02	0.03
Total	**2.5**	**2.6**	**3.5**

FREP quality management received slightly more full-time equivalents (FTEs) than projected in 2006/07. The position of Data Management Coordinator was created in October 2006 to aid the physical data and checklist management. Less time was spent on QA site visits this year, but more time was spent on mentor sessions, which benefit the data collection greatly. More time was allocated to verify data entry accuracy using temporary staff. This re-work is due to technical challenges and the unfamiliarity with FREP IMS faced when entering data.

Proposed new data entry methods include field staff entering their own data and contractors hired on site for the next field season. Since the Question and Answer summary has been moved online and into a searchable database, less time is projected to administer this task. However, the monthly conference call will continue to examine any issues relating to resource stewardship monitoring.

FINANCIAL

	$		
	Projected 2006/07	Actual 2006/07	Project 2007/08
Training and Quality Management courses	3,000	16,200	5,000
Travel and training	2,000	2,500	3,000
Books, manuals, and standards	1,000	400	1,500
QA site visits	20,000	7,500	10,000
Data entry	10,000	13,000	10,000
Data cleaning	25,000	4,000	5,000
Data verification (included in data cleaning in 2006/07 fiscal year)	N/A	8,700	10,000
Data analysis	20,000	ongoing[1]	ongoing[1]
Question and Answer summary	1,500	bundled[2]	bundled[2]
Data quality solution for FREP IMS (methodology and technology)	50,000	no funding[3]	10,000[4]
NQI level 2 and 3 application fee			10,000
Total	**$132,500**	**$52,300**	**$64,500**

1 Ongoing with multi-year contract.
2 Bundled with other contracts.
3 Funding pulled from FREP IMS.
4 For data quality rule programming.

Led by the Information Management Group (IMG) data quality initiative, FREP expects to put $10,000 into programming data quality rules for Stand-level biodiversity and Riparian checklists using approved software called "Certify."

COURSES AND TRAINING

Course Title	Number of Participants		
	Projected 2006/07	Actual 2006/07	Project 2007/08
Quest for Quality (module 1) National Quality Institute*	0	0	1
Quest for Quality (module 2 & 3) National Quality Institute	0	0	1
Framework for Excellence (online plus 2-day workshop)	12	10	0
Process Mapping	5	1	1
Introduction to ISO 9000	0	0	1
Root cause analysis	0	0	1
Project Management	4	2	4
MS Excel level 3	1	0	0
Total	**22**	**13**	**9**

Following the recommendation in the 2005/06 annual report, the entire quality management team has been trained in the NQI framework and criteria — hence the significant increase in quality management training. Funding from FREP IMS on data quality was withdrawn due to system releasing and testing schedules.

The entire Quality Management Team completed the "Framework for Excellence" training with NQI. Two extra seats have been added to the course due to membership changes in the team. Only one person completed the process mapping training due to course availability. The process mapping course has been very useful in operational planning, quality control, and team building. As project management is a cornerstone of the program, the team will continue to be trained in project management. Only the quality management and tools training are funded from the FREP QM budget; other courses are offered through the Public Service Agency and branch.

Quality Management and Assurance

QUALITY POLICY AND CULTURE IMPLEMENTATION

Leadership from the Quality Management Team (QMT) has made some significant difference. From various surveys responded by field staff, Forest Practices Board, senior management and executives, we recorded an awareness of the quality program and the principles of continuous improvement. The survey results also generated many

suggested improvements to FREP. The FREP working group and FREP QMT will decide the priority of implementation of each improvement item.

Within FREP, the culture of quality still needs to be enhanced so that working groups, teams, and regional and district offices can understand the NQI framework and criteria. For example, more workshops and tools should be made available to FREP staff. Within the ministry, FREP should promote itself and its quality program to other branches and

programs. The link between the NQI quality program and the Premier's Award is a significant achievement and recognition to public servants. FREP QMT will continue to lead the work.

TRAINING ON QM AND CERTIFIED EXCELLENCE PROFESSIONAL

NQI offers professional training to quality professionals. Certified Excellence Professional (CEP) is potentially one of the desirable designations for FREP. This designation should help FREP pursue NQI certification and the implementation of quality-related initiatives. Courses in this designation include process mapping, root cause analysis, and measurement of customer satisfaction. However, this designation has a strong online component. The online courses are mostly business skills that professionals should already have. The Public Service Agency also offers these types of courses but much more in depth and more appropriate for the public sector. After initial examination of this designation, the QMT recommends the classroom quality courses, but not the online business courses. This approach will not achieve the CEP designation. However, until NQI has brought the CEP designation to the caliber and standards of those designations with the American Society for Quality,

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* Modules 1, 2, and 3 of Quest for Quality certify a Level 1 Excellence Professional from the National Quality Institute (www.nqi.com).

QMT deems that the CEP designation is not a priority. FREP QMT will also look into ISO and other quality-related courses (i.e., TQM, QFD, and Six Sigma) so that the best tools are used to implement the quality programs in FREP.

FREP QUALITY INDICATORS AND DATA COLLECTION

FREP has started the work on quality indicators to have at least one quality indicator in each NQI criteria. The quality indicators need to meet level 4 criteria, which includes all levels of criteria. Then a data collection protocol will be available for each quality indicator. This work started in late 2006 and will be completed in 2007. Over the first 3 years, the quality indicators will show a trend of improvement or gaps of FREP using the NQI criteria. Ideally the trend will improve as FREP progresses with the NQI framework and certification.

IMPLEMENTATION SCHEDULE FROM THE WORK PLAN

NQI PROGRESSIVE EXCELLENCE PROGRAM (PEP) APPLICATIONS

FREP achieved level 1 certification on September 18, 2006. To celebrate this significant achievement, each district manager was presented a copy of the certificate. The Chief Forester also joined the celebration.

NQI level 2 submission deadline has been revised to June 30, 2007, due to a change of submission dates from NQI. The site visit is to be completed in September 2007. In the 2007/08 QM work plan, details of the site visit will be planned. After the submission of the level 2 application, the QMT, Victoria FREP team, and FREP working group will work to implement the improvement plan as recommended by the application.

Level 3 application will be completed and submitted before April 30, 2008. This process will include a 2-day site visit from NQI. FREP will apply for level 4 certification using the quality indicators over the past 3 years in 2009.

The following table evaluates the deliverables and deadlines that the QMT planned for the 2006/07 QM work plan. Most of the deliverables are completed with minor delay. One major deliverable still in progress is the quality indicators. The indicators will need to be completed in 2007 so that data can be accumulated for at least 3 years.

schedule of deliverables 2006/07 and projects planned for 2008-09

Task/ Project	Target Completion Date	Actual Completion Date	Status/ Action Required	Continuous improvement
1. NQI PEP level 1 certification	September 29, 2006	September 18, 2006	Completed	Promotion of the level 1 achievement
2. NQI PEP level 2 certification	December 8, 2006	Summer/Fall 2008	In Progress	Follow closely with revised dates with NQI
3. NQI PEP level 3 and 4 planning	August 31, 2007	2008 to 2009	Planned	To be detailed in 2007/08 QM work plan
4. Premier's Award	October 31, 2006	November 2006	Completed	Submit again and show track of performance
5. Quality Assurance - quality indicators	December 22, 2006	July 2007	In Progress	Need to establish more indicators using level 4 criteria. Need to collect data for all indicators
6. Quality control protocols	December 31, 2006	December 2006	Completed	Need to produce another interim data management Quality Control Protocol for 2007/08
7. Data quality	June 30, 2007	Planned for 2007 release 4 or 5	In Progress	IMG pilots the data quality projects. FREP IMS is one of the first systems to implement data quality software. Working group needs to work out the business rule and data quality rule process map.
8. Quality Management training	December 22, 2006	December 2006	Completed	All members of QMT trained in NQI framework. Need to train more QM tools for interested staff.
9. Forest Practices Board independent quality management assessment framework	February 2007	February 2007	Completed	Board is pleased with the available FREP quality management systems and processes. Board encourages FREP to achieve NQI level 4 certification.

Quality Control

In 2006/07, the QMT produced an interim data management quality control protocol using process mapping. The protocol lays out the process of data reception, validation, entry, verification, cleaning, and correction. The protocol is posted on the FREP Web site.[5]

The protocol is one of the methods to ensure that the processes are consistently implemented. The distribution and the promotion of these protocols should be enhanced. For example, trainers and team leads should clearly explain to staff that these are the processes to be followed.

For 2007/08, more process map style protocols will meet the needs of the FREP. For example, there will be 2 streams of data entry – district and Victoria centralized data entry. A new protocol will lay out the processes to ensure consistency and data quality. Protocols that document the data analysis and reporting formulas will also be produced. In addition, a protocol to design quality indicators using NQI criteria and principles will enable FREP to accumulate 3 years of trend so that application for levels 3 and 4 can be made.

Facts on Data

For the 2006/07 field season, FREP completed 818 checklists. The breakdown of the checklists by resource values and types is listed below.

Number of checklists for the 2006 field season

Resource value and type	Number of checklists recieved
Stand-level Biodiversity (SLBD)	455
Riparian/ Fish habitat	297
SLBD big block	20
FREP QA data - SLBD	15
FREP QA data - Riparian/ Fish habitat	12
2005 blocks done in 2006 field season - SLBD	15
2005 blocks done in 2006 field season - Riparian / Fish habitat	4
Total	**818**

Significant time and effort are also allocated to the management of the checklists and data. The total hours of 2141 can be translated to the equivalent of 1.2 full-time equivalent (2141 hours/1827 hours = 1.2 FTEs).

Breakdown of data validation, entry, cleaning, and verification time

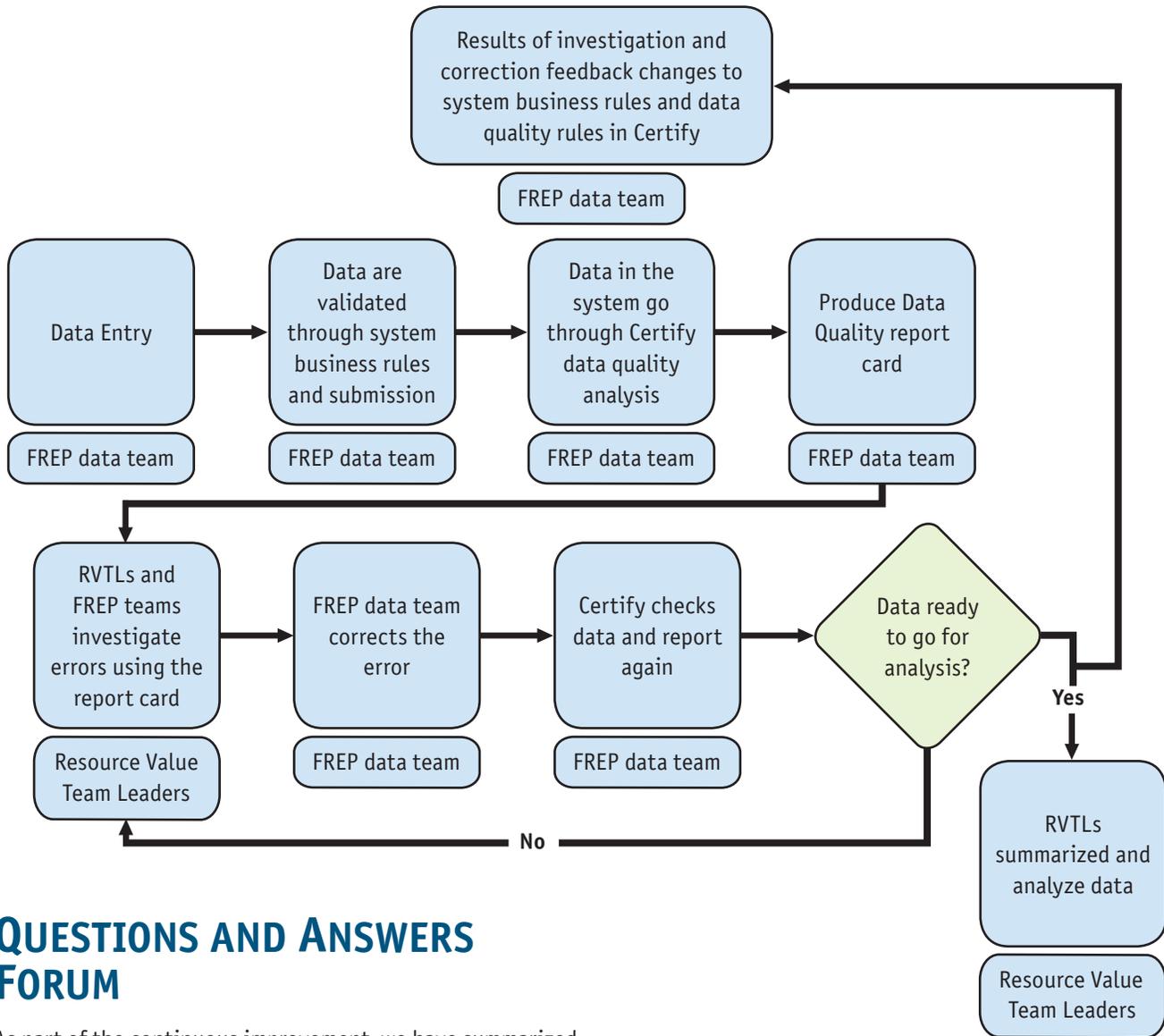| Task	Time spent (hours)
Data validation[a]	431
Data entry[b]	520
Data cleaning[c]	117
Data verification[d]	450
General data administration[e]	623
Total	**2,141**

a **Data validation** – team leaders and trainers validate the data on the paper checklists to ensure that the protocols are followed and that data on the checklists truly reflect the field conditions

b **Data entry** – the input of data from paper checklists to FREP Information Management System (FREP IMS)

c **Data cleaning** – the logic check against business rules on the data in FREP IMS

d **Data verification** – the verifying of data entry accuracy

e **General data administration** – the tasks of keeping statistics and logs of paper checklists

During data entry, the FREP IMS was not fully ready and stable. As a result, the data entry done by contractors is not up to standard. The FREP data team has spent many hours verifying all the checklists. In addition to data verification, the FREP data team has validated and cleaned all data captured in the FREP IMS. This ensures the quality excellence of FREP data.

Data Quality

The data quality software, Certify, is suitable for FREP IMS. Under the leadership of the Information Management Group, the FREP IMS working group will decide on how to implement this data quality software with the system. A conceptual process map for data quality software and FREP IMS integration is shown on next page.

5 See http://www.for.gov.bc.ca/hfp/frep/site_files/qmgmt/QM_QCP04-DataManagement-20-Mar-2007.pdf

Results of investigation and correction feedback changes to system business rules and data quality rules in Certify

FREP data team

Data Entry

FREP data team

Data are validated through system business rules and submission

FREP data team

Data in the system go through Certify data quality analysis

FREP data team

Produce Data Quality report card

FREP data team

RVTLs and FREP teams investigate errors using the report card

Resource Value Team Leaders

FREP data team corrects the error

FREP data team

Certify checks data and report again

FREP data team

Data ready to go for analysis?

Yes

No

RVTLs summarized and analyze data

Resource Value Team Leaders

QUESTIONS AND ANSWERS FORUM

As part of the continuous improvement, we have summarized all the communication, feedback, suggestions, questions and answers, and QA Site Visit reports into a Question & Answer (Q&A) forum on the FREP Web site. The Q&A forum provides a user-friendly environment for program staff to find answers to their questions, and post new questions. The forum is managed and monitored for accuracy, consistency, and easy access. The link to the online Q&A forum is http://www.for.gov.bc.ca/pscripts/pab/fordisc/view_discussion.asp?TopicID=66

*The FREP Annual Report is a regular publication of the **Forest and Range Evaluation Program** designed to inform stakeholders on program development and implementation, and report on the results of evaluation projects.*

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CONTINUOUS IMPROVEMENT AND RECOMMENDATIONS FOR 2007/08

- FREP should continue to promote quality culture within the program and the Ministry. The NQI framework and criteria should be explained through training, workshops, and presentations.

- FREP QMT should produce more quality control protocols for quality indicators, data analysis and management, training, and organization of large meetings.

- Develop an implementation schedule and plan for all the improvement plans — there are currently too many improvement initiatives.