
# *WORKSHOP REPORT*

## Pilot study preparation workshop

## The University of Edinburgh

17-28th September 2001

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# Executive Summary

This report documents a training workshop supporting the implementation of yield regulation pilot studies in Guyana and Indonesia. The workshop was held at the University of Edinburgh over the period 17-28th September 2001. The participants included counterpart staff from FRP projects being implemented in conjunction with the Guyana Forestry Commission and the Universities of Mulawarman and Bengkulu in Indonesia.

Participants were given training in the application of the SYMFOR framework (http://www.symfor.org) for yield regulation studies to complement similar training for the MYRLIN toolbox (http://www.myrlin.org) that was provided at the University of Oxford immediately before the Edinburgh workshop.

The participants identified a need for additional training in generic skills relating to statistical analysis, presentation of results and report writing. Some training was provided on these topics, but limited to that which was of immediate relevance to the implementation of the pilot studies. The need for additional training on these topics has given a very high priority by the participants in their reports on the workshop.

The participants used the workshop to plan activities for the pilot studies. This process started with an assessment of potential clients for yield regulation information from local and international stakeholders. The plans for the studies were targeted at supporting the needs of clients with the potential to influence behaviour leading to more responsible (sustainable and equitable) management of forest resources. The plans for each pilot study were reported in the back to office reports produced by the project teams from each country and are available from the SYMFOR web site (http://www.symfor.org/btor).

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# Summary of Recommendations.

The participants at the workshop were required to produce their own back to office reports that described the training and plans for the pilot studies. Each of these reports contained a number of recommendations for action. The recommendations contained in the Indonesian report (Ridwan & Redhahari, 2001) are reproduced as Appendix 8. The recommendations contained in the Guyanese report (Khan & Singh, 2001) are reproduced as Appendix 9.

The most important issues raised were:

- Demand for training in data processing and statistical analysis to be supported by the provision of suitable software packages.
- Demand for training in forest management techniques that support the development of adaptive management systems to meet the needs of a wider range of stakeholders.
- Demand for technical assistance to support local multistakeholder initiatives relating to regulating the yield of goods and services from forests.

No additional recommendations resulted from the workshop.

# Abbreviations

| Abbreviation | Definition |
|---|---|
| DFID | Department for International Development |
| FRP | (DFID) Forestry Research Programme |
| SYMFOR | Silviculture and Yield Management for tropical Forests. (Growth and yield model) |
| GFC | Guyana Forestry Commission |
| MYRLIN | Methods for Yield Regulation with Limited Information (FRP project R7278 output) |
| LATIN | Lembaga Alam Tropika Indonesia (Indonesia Tropical Institute) |
| FPL | Forest Planning Laboratory, Universitas Mulawarnan, Samarinda, Indonesia. |
| FRIM | Forest Research Institute, Malaysia. |

# 1 Introduction

1.1.1 Pilot studies applying timber yield regulation tools developed under the DFID Forestry Research Programme (FRP) are being implemented in Guyana and Indonesia. The SYMFOR framework (http://www.symfor.org) developed under project R6915 and MYRLIN toolbox (http://www.myrlin.org) developed under project R7278 will be applied by staff from partner organisations in Guyana and Indonesia. The background to these studies is covered in a previous FRP report (van Gardingen, 2001). More detail is provided in technical reports produced by FRP staff working in Guyana (MacQueen, 2001; Phillips, 2001a) and Indonesia (Lewis, 2001).

1.1.2 A two-week workshop was held in Edinburgh, UK, during September 2001 to support the studies, bringing all the participants together to provide an opportunity for training, lesson learning and feedback. The Edinburgh workshop was held following a training workshop at the University of Oxford introducing the MYRLIN toolbox, developed under FRP project R7278.

1.1.3 The participants invited to the Edinburgh workshop are listed in Appendix 1. Ir. Ridwan, Ir. Redhahari and Mr D.M. Lewis represented the pilot study team for Indonesia. Ir. Redhahari and Ir. Ridwan are consultants working for FRP project R6915, responsible for the undertaking of the pilot study in Indonesia, with technical and communication assistance provided by Mr Lewis. Mr J. Singh, Mr M.T. Khan and Mr G. Nicol represented the Guyana pilot study. Mr Singh and Mr Khan work for the GFC, and were given responsibility for implementing the yield regulation pilot study in Guyana, with technical assistance provided by Mr Nicol for FRP project R7278. In addition to the pilot study team members, Ir. Happy Tarumadevyanto attended during in the final 5 days of the workshop to provide perspectives and information linking the Indonesian pilot study with the process of certification in Indonesia.

1.1.4 The structure of the workshop was dynamic, with a list of milestone targets for the participants forming the technical training objectives. The content was designed on an adaptive, responsive basis, and is reported here as it happened rather than as it was originally designed. Documentation for the workshop was provided to the participants via the SYMFOR web site (http://www.symfor.org/training).

# 2 Objectives of the workshop

2.1.1 The workshop was intended to facilitate the planning for the FRP yield regulation pilot studies in Guyana and Indonesia and to provide training for the team members involved in the studies. The workshop also provided an opportunity for team members to share their experience, promoting lesson learning between projects in the two countries.

2.1.2 The intended outcomes from the workshop were:

- Plans for the pilot studies in Indonesia and Guyana that would then be used to stimulate discussion with other local stakeholders before joint implementation of an agreed workplan.
- Staff working on the pilot studies provided with skills that enabled them to:
  - plan and implement the studies;
  - analyse the results; and
  - to report their findings to a range of local and international stakeholders.

2.1.3 Specific objectives were agreed with the participants at the start of the workshop. These were to:

- Identify clients from information provided by the yield regulation pilot studies in Guyana and Indonesia;
- Develop plans for the pilot studies that would meet the needs of a number of stakeholder groups in each country;
- Enable full participation of all team members in the planning process for the pilot studies and provide a forum to promote lesson learning and cooperation between the teams in Indonesia and Guyana;
- Identify training requirements from FRP team members to support the implementation of the yield regulation pilot studies and where possible, any proposed follow-up activities
- Provide any necessary training required for the fulfilment of the pilot studies.

2.1.4 The objectives were developed with the full participation of the participants using a structure approach to determine their previous experience (Appendix 2) and discussion of the needs of potential clients (Appendix 6).

# 3 Workshop content

## 3.1 Introduction

3.1.1 The workshop was run to respond to the abilities and needs of the participants for the yield regulation pilot studies. These studies were intended to demonstrate the application of SYMFOR (http://www.symfor.org) and MYRLIN (http://www.myrlin.org) for yield regulation in Guyana and Indonesia. Training in the application of MYRLIN had been provided in a workshop held in Oxford immediately preceding the Edinburgh workshop.

3.1.2 A set of training objectives (Appendix 3) relating to the application of SYMFOR were used to guide the first phase of the workshop. This was combined with the assessment of statistical training needs (Appendix 2). The workshop programme is given as Appendix 4.

3.1.3 The main components of the workshop are summarised here and the training documentation is available from the SYMFOR web site http://www.symfor.org/training (Phillips & van Gardingen, 2002).

## 3.2 Training for the application of SYMFOR

3.2.1 The participants varied in the extent of their previous experience in understanding and applying SYMFOR. Ir. Redhahari and Mr Lewis were most experienced, having conducted a short application into the effects of thinning as a training exercise in Edinburgh during May 2001. Ir. Ridwan had evaluated the application of SYMFOR for analysis of data from the PT IFA concession in the Jambi province, Sumatra, Indonesia, as part of his MSc dissertation. He had also attended the "training for trainers" workshop held in Bogor in February 2001 (Phillips, 2001b). Mr Singh, Mr Khan and Mr Nicol had participated in demonstrations and discussions of SYMFOR in Guyana (van Gardingen, 2001; Phillips, 2001a).

3.2.2 The participants were trained and given practice in the following aspects of SYMFOR:

- Introduction to the SYMFOR framework and model structure.
- Input and output data formats.
- Making Management models.
- Making management models in practice
- Multiple-runs. Understanding the output data.
- SYMFOR Post-Processor 1
- Output data set-up and examination
- How to decide what data to output? Designing the analysis
- SYMFOR Post Processor 2
- Introduction to the ecological models: how do they work?
- SYMFOR files: models, multiple-runs, display settings, etc.

3.2.3 The "post processor 2" (Phillips & van Gardingen, 2001) is a data analysis tool written during the workshop in response to the identification of the need for additional data processing tools that could process the type and quantity of data typically output from SYMFOR. It can be downloaded from the SYMFOR web site.

## 3.3 Statistics training

3.3.1 The questionnaire on statistical methods (Appendix 2) showed that nearly all of the participants identified the need for significant training in statistical techniques to support their work. This was reinforced in both of the back to office reports resulting from the training workshops (Khan & Singh, 2001; Ridwan & Redhahari, 2001).

3.3.2 There was insufficient time available in the workshop to be able to address all of the training needs identified by the participants. The training was limited to aspects of direct and immediate relevance to the proposed yield regulation pilot studies. Much of the training was based around guidelines supporting natural resource research in developing countries produced by the Statistical Services Centre at the University of Reading (http://www.rdg.ac.uk/ssc/dfid/booklets.

3.3.3 The main themes addressed during the statistical training were:

- Review of basic statistical concepts and methods
- Statistical comparison of management alternatives
- Multiple-plot data analysis.
- Analysis of pre-prepared data output from SYMFOR
- Statistics: trials, comparisons, inference: T-tests.
- SYMFOR data preparation from Permanent Sample Plots: Microsoft Query in Excel
- Data analysis: Post Processor 2 and Excel.

## 3.4 Pilot study preparation

3.4.1 A major proportion of the workshop was reserved for the participants to develop plans for the yield regulation pilot studies (referred to as "case studies" during the workshop). The design process was driven by an assessment of demand for new knowledge from stakeholder groups in each country. This was combined with guidance relating to the design and implementation of projects that will meet the needs of potential clients for knowledge.

3.4.2 A check-list (Appendix 5) was used to ensure that the discussion was structured and that desired outcomes were achieved by the end of the workshop. These included

- Introduction to the pilot studies.
- Clients and client needs (Pilot Studies)
- Pilot Studies checklist and development of workplans
- Availability of data for the pilot studies.
- Development workplans:
  Data analysis, assessment of clients and their needs, timescale, outputs
- Final pilot study plans

3.4.3 The participants produced documentation of the potential clients for growth and yield information in their respective countries (or regions of countries). This information is given in Appendix 6.

3.4.4 At the end of the workshop, the participants made presentations on their proposals for the pilot studies that linked the activities to the assessed needs from local stakeholder groups.

## 3.5 Data presentation and report writing

3.5.1 The discussion of data presentation skills was designed to make reports more effective in reaching and influencing their target audience. The training was based around information contained in the training booklets produced by the Statistical Services Centre at the University of Reading http://www.rdg.ac.uk/ssc/dfid/booklets but restricted to topics of direct relevance to the pilot studies. The approach adopted in the workshop was to start with the documentation of client needs and to discuss how best to present information to meet these. There was insufficient time available to cover other topics on presentational skills that had been requested by the participants.

3.5.2 The participants were required to produce a back to office report describing their training and the planning for the pilot studies. The training component of this work discussed methods to make reports more effective to influence their target audience. They were provided with a standard format for reports that has been adopted for all activities within FRP project R6915.

# 4 Conclusions

4.1.1 The workshop responded to the needs of the participants for the implementation of yield regulation case studies in Indonesia and Guyana. Comprehensive training was provided to support the application of SYMFOR in these studies and in the design of the pilot studies. This component of the workshop was fully completed.

4.1.2 The process of consultation with the participants identified significant demand for additional training in the generic areas of statistical analysis and presentation of information (including report writing). Training provided in these areas was limited to that which was of direct relevance to the pilot studies. Even with this restriction all participants requested additional information and training at the end of the workshop. Both of these themes are generic skills and the participants from the developing countries all identified that the provision of appropriate training and resources would greatly improve their ability to carrying out their basic job functions.

4.1.3 The participants provided feedback through a questionnaire at the end of the workshop. The questionnaire and a summary of responses are presented in Appendix 7. All of the participants judged the workshop to have been successful and of direct relevance to improving their ability to carry out their work. Further detail and their intended application of the training is given in their back to office reports (Khan & Singh, 2001; Ridwan & Redhahari, 2001).

# 5 References


Khan,M.T. and Singh,J. (2001) *Methods of Yield Regulation in Moist Tropical Forest with Minimal Data (MYRLIN) The University of Oxford, UK And Silviculture and Yield Modelling for Tropical Forests (SYMFOR) The University of Edinburgh, UK 10-28th September*. Guyana Forestry Commission, Georgetown, Guyana, 16 pgs., http://www.symfor.org/btor/GFC_sept01.pdf

Lewis,D.M. (2001) *Ongoing local liaison, support and co-ordination for FRP R6915 Indonesian partners Indonesia 30th May - 2nd August 2001*. LTS International, Edinburgh, 12 pgs., http://www.symfor.org/btor/DL_sep01.pdf

MacQueen,D.J. (2001) *Evidence-based policies for good governance. The applicability of growth and yield modelling in the Guyana forest sector*. International Institute for Environment and Development, London, 115 pgs.

Phillips,P.D. (2001a) *Back to office Report. Development of modelling objectives. Guyana*. The University of Edinburgh, Edinburgh, 21 pgs., http://meranti.ierm.ed.ac.uk/gyproject/BTOR/Guyana_jun01.pdf

Phillips,P.D. (2001b) *Back to office report. Visit to Indonesia: SYMFOR training, 5 February - 2 March 2001*. The University of Edinburgh, Edinburgh, 12 pgs., http://meranti.ierm.ed.ac.uk/gyproject/BTOR/pp_mar01.pdf

Phillips,P.D. & van Gardingen,P.R. (2001) *SYMFOR post processor 2*. The University of Edinburgh , Edinburgh, http://www.symfor.org/symfor/download/execut/PostP2.exe

Phillips,P.D. & van Gardingen,P.R. (2002) *SYMFOR Training materials. FRP Project R6915 workshop, September 2001*. The University of Edinburgh, http://www.symfor.org/training

Ridwan and Redhahari (2001) *Back to office report. Training workshops for Methods of Yield Regulation in Moist Tropical Forest with limited information (MYRLIN) The University of Oxford and Silviculture and Yield Management for Tropical Forests (SYMFOR) The University of Edinburgh, UK. 10-28th* September 2001. Universitas Mulawarman, Samarinda, Indonesia, 21 pgs., http://www.symfor.org/btor/unmul_2001.pdf

van Gardingen,P.R. (2001) *Back to Office Report. Partnership building FRP projects R6915, R7278, ZF015. Zimbabwe, Indonesia, Australia, Guyana, Brazil USA (Washington) 8 February - 28 March 2001*. The University of Edinburgh, Edinburgh, 45 pgs., http://meranti.ierm.ed.ac.uk/gyproject/BTOR/partnership_mar01.pdf

# Appendix 1. Workshop participants

| | | |
|---|---|---|
| Ir. Redhahari | Universitas Mulawarnan | Samarinda, Indonesia |
| Ir. Ridwan | Universitas Bengkulu. | Sumatra Indonesia |
| Mr Gavin Nicol | FRP Project R7278 | United Kingdom |
| Mr Dejan Lewis | FRP Project R6915 | United Kingdom |
| Mr Jagdesh Singh | Guyana Forestry Commission | Georgetown Guyana |
| Mr Mohammed Khan | Guyana Forestry Commission | Georgetown Guyana |
| Ir. Happy Tarumadevyanto | LATIN | Bogor, Indonesia |

# Appendix 2. Previous statistical experience.

These details are summarised from a questionnaire completed by the participants at the workshop.

## Questionnaire

Analysis of data that are output by SYMFOR requires some understanding of statistical methods, both in theory and in practice. For example: data may be output for each felled tree at the end of each run; with several runs for each plot; several plots for each management option; and several management options. How would you analyse the data to compare the management options in terms of timber yield? Some data processing is required, followed by a statistically valid comparison. Without this, the results will not be valid, and will be criticised.

Please answer the following questions so that the organisers can produce appropriate training material for you to successfully complete the course.

1. What percentage of your work time is spent processing or analysing data (numerical records in computer form)?
   0% 1% – 5% 6% – 20% 20% – 100%

2. Have you had training in statistics before?
   YES NO
   If YES, please describe it and give the names of some statistical methods you were taught:

3. Circle all of the following statistical software packages that you have used:
   SAS SPSS Minitab Genstat Excel
   Other – please specify:

4. Circle all of the following statistical terms that you are familiar with and understand:
   Mean Standard error Standard deviation Regression
   Normal distribution Analysis of Variance Other:

5. List the statistical tasks that you carry out as part of your normal work.

## Summary of responses

The numbers of stars indicate the number of participants that response.

1. Percentage of work time spent on data processing and analysis:

| | |
|---|---|
| 1-5% | * |
| 6-20 % | ** |
| 20-100% | **** |

2. Previous training in statistics:

| | |
|---|---|
| Yes | **** |
| No | *** |

Which methods?

Excel, SAS, basic experimental design

3. Packages used:

| | |
|---|---|
| SAS | * |
| SPSS | - |
| Minitab | * |
| Genstat | - |
| Excel | **** |
| Microstat | * |

4. Statistical terms known:

| | |
|---|---|
| Mean | ******* |
| Standard error | ****** |
| Standard deviation | ******* |
| Regression | ******* |
| Normal distribution | ******* |
| Analysis of variance | ***** |

5. Statistical tasks[1] carried out as part of normal work:
   - Sampling,
   - Data processing of forest inventory data:
   - Summary statistics on inventory data sets – sampling errors etc
   - Regression analysis, e.g. volume tables
   - Comparison of means using t-test and analysis of variance for experimental data

   (One participant stated that they did not use statistics)

[1] These have been summarised from the participants' responses.

# Appendix 3. Workshop milestones

The milestones were the targets for the course.

| No. | Details | Date, Time (September 2001) |
|---|---|---|
| 1 | Arrival | Monday 17th, 9:30 |
| 2 | Ability to input data, perform single runs and use the displays | Friday 21st, 12:00 |
| 3 | Ability to use simple statistical tools to analyse data | Tuesday 18th, 18:00 |
| 4 | Ability to set up an analysis of silvicultural options: set up a management model, set the parameters and perform a multiple run. | Thursday 20th, 12:00 |
| 5 | Ability to perform multiple runs and analyse the output with the post-processor | Wednesday 26th, 18:00 |
| 6 | Ability to plan the modelling approach for a case-study | Thursday 27th, 12:00 |
| 7 | Ability to write a professional case-study report | Friday 28th, 12:00 |
| 8 | Completion of the course | Friday 28th, 15:00 |

# Appendix 4. Workshop programme

| Date | | Details |
|---|---|---|
| Monday, | am | Registration, welcome address, introductions |
| 17-Sep-01 | | Introduction to the course. |
| | | Introduction to the case studies. |
| | | Single runs, exploratory analysis of SYMFOR, standard models |
| | pm | Review of participants education, training, background and experience. |
| | | Introduction to the SYMFOR framework and model structure. |
| Tuesday, | am | Input and output data formats. |
| 18-Sep-01 | | Making Management models. |
| | | Review of basic statistics |
| | pm | Clients and client needs (Case Studies) |
| | | Making management models in practice |
| | | Statistical comparison of management alternatives |
| Wednesday | am | Multiple-runs. Understanding the output data. |
| 19-Sep-01 | | Multiple-plot data analysis. |
| | pm | Free time |
| Thursday | am | SYMFOR Post-Processor 1 |
| 20-Sep-01 | | Analysis of pre-prepared data output from SYMFOR |
| | pm | Output data set-up and examination |
| | | Statistics: trials, comparisons, inference: T-tests. |
| Friday | am | Review: Exercise 3: Single runs and displays. |
| 21-Sep-01 | | |
| | pm | Strengthen weak points: Exercise 4: Making management models, multiple runs, post processor, results analysis. |
| Weekend | | Free time |

| | | |
|---|---|---|
| Monday, 24-Sep-01 | | Free-time (Public holiday)<br>library visits, practice SYMFOR, or<br>Case study design. |
| Tuesday, 25-Sep-01 | am | Case Studies checklist and workplan development<br>Case study preparation discussions relating to data availability/formats. |
| | pm | Development of case study workplans:<br>Analysis, primary and secondary clients, timescale, outputs |
| Wednesday 26-Sep-01 | am | SYMFOR data preparation from PSPs: MS Query in Excel<br>How to decide what data to output? Designing the analysis<br>SYMFOR post processor 2 |
| | pm | Free time in Edinburgh |
| Thursday 27-Sep-01 | am | Introduction to the ecological models: how do they work?<br>SYMFOR files: models, multi-runs, display settings, etc.<br>Data analysis: PostP2 and Excel. |
| | pm | Presenting data<br>Writing a case study report |
| Friday 28-Sep-01 | am | Final case study plans<br>Summary, weak points revisited<br>Presentation of certificates |
| | pm | Where from here? FRP projects R6915 and R7278, and MOFORM: ZF0151 |

# Appendix 5. Pilot study planning checklist

By the end of week 2 of the SYMFOR workshop, we should have answers for these questions for each of the pilot studies.

1. Who are the clients – pilot study partners, and also secondary clients?
2. What data?
3. What region?
4. What software tools?
5. What analyses – what results?
6. Who do you need permission from?
7. How long will the pilot study take?
8. What are the threats to the pilot study? (reasons why the pilot study may not succeed)
9. Who will you present results to?
10. What reports/presentations/documents will you produce?
11. What is the schedule for the pilot study?

# Appendix 6. Identification of clients for new knowledge from pilot studies

These tables were working documents produced by each pilot study team that were created during and as a result of discussions held during the workshop. The text content has not been changed. Any errors, omissions or inaccuracies are due to the progressive nature of the discussion, and are not the final basis or context for the pilot study development.

**Table 1: Clients for growth and yield information for the Pilot Studies in Indonesia:**

| General clients | Specific Clients | Information needs / Notes |
|---|---|---|
| Community forestry | West Kutai – Besik | As a result of the rapid decentralisation and corresponding reallocation of smaller pockets of logged over areas to local communities there is a immediate need to quantify existing stocked areas / land use planning, timber stock summaries. W. Kutai needs to a) collect information about their resource because there is no current inventory nor in house expertise b) to collate existing information (landsat imagery & local knowledge) and schedule timber yield according to local needs. |
| | Sulawesi | As above - information for the Bualemo community forest is restricted to local knowledge of forest stocking and distribution - The communities in this area have expressed interest to local NGOs (Kelola - Marianti) for a preliminary stock survey, and information needs include yield regulation, silvicultural system specific to their area, and some form of marketing strategies to further enable local control and empowerment |
| Local NGOs | Kelola – Sulawesi | require survey summary information and allowable cuts in support of local community groups |
| | Geocarpa | require survey summary information and allowable cuts in support of local community groups |
| Regional NGOs | | |
| National NGOs | WALHI | Wide coverage of activities including oil comps- in terms of forestry as an independent watchdog of the certification process between certifiers and company; the means of processing existing company information to see whether this conforms to sustainable practice or not/future stocks. And fill huge information gaps with newly acquired community forest |
| | KKIP | require survey and forest planning information in support of local community groups |
| International NGOs | Rainforest Alliance | |
| | WWF | |
| Universities | UnMul | Information for forest planning and yield regulation in the East Kalimantan region (especially for community forestry) |
| | Bengkulu | Information for forest planning and yield regulation in the Bengkulu region |
| District Government | Forestry Department | Up to date Forest planning and yield regulation information/ district |
| Regional Government | | Up to date Forest planning and yield regulation / region |

| General clients | Specific Clients | Information needs / Notes |
|---|---|---|
| National Government | Ministry of Forestry | Up to date Forest planning and yield regulation / country |
| | Bapedal (monitoring) | Up to date Planning/Monitoring - region/country |
| Private Companies | SBK | |
| | Daisy | Daisy has recently opened formal communication with TFT, and has one full time staff in situ. Daisy is currently seeking certification and would require planning related, production, timber stocking summaries, future yield regulation, AAC. Data quality and quantity is currently unknown but a meeting has been established for the 14 sep |
| | West Kutai HPHs | Planning related, production, timber stocking summaries, future yield regulation, AAC |
| State-owned companies | Inhutani 1 | Inhutani has enjoyed formal co-operation with the BFMP project over a considerable time period. The company has advanced GIS overlays, analysis, satellite imagery and Radar information. Their PSP are by far the best in the country and they have a relatively up to date and representative inventory of the Labanan I area covering 80,000 ha. Of this a proportion of unsampled areas has had sampling extrapolation on the basis of forest type and associated sampled stocking. 80,000ha of the concession has no inventory, this is now in progress. Areas demonstrating different growth habits have been sampled through a programme of PIP. Labanan has completed most of their Yield scheduling requirements, but would like to further investigate areas where there is less information and information now captured by the PIP. (i.e. Labanan II - process and assess current stocks for the inventory, and assess sustainability through some form of stock projection/simulation |
| | SCKP partner HPHs | Planning related, production, timber stocking summaries, future yield regulation, AAC |
| International development projects/agencies | | |
| Certification bodies | LEI | Planning related, production, timber stocking summaries, timber yield regulation, AAC |
| | Smartwood/LATIN | Planning related, production, timber stocking summaries, timber yield regulation, AAC |
| | SGS/IntracaWood | Planning related, production, timber stocking summaries, timber yield regulation, AAC |

**Table 2: Clients for growth and yield information for the Pilot Studies in Guyana.**

| Client Category | Specific Clients | Importance | Questions to answer/ requests made by clients | Addressed by Pilot Study? | Info needed to address needs | Outputs needed |
|---|---|---|---|---|---|---|
| Government | Minister with responsibility for Forestry | 1 | Implications and feasibility of regulating timber yields | Y | Summary of activities and conclusions | Case study report summary |
| | EPA (Environmental Protection Agency) | 2 | Implications and feasibility of regulating timber yields | Y | Full description of activities and conclusions | Case study report |
| | Minister for Amerindian Affairs | 2 | Implications and feasibility of regulating timber yields | Y | Full description of activities and conclusions | Case study report |
| Policy Makers | GFC Commissioner | 1 | Implications and feasibility of regulating timber yields | Y | Full description of activities and conclusions; active exposure to findings | Case study report and a workshop at the end of the case study period |
| | | | Main options for achieving/demonstrating this. | Step by step guide to main activities required | Description of generic procedure | |
| | | | Implications of implementing code of practice | Y | CoP scenario catered for in modelling runs | As above |
| NGOs/Quangos | FPA (Forest Producers Association) | 1 | Implications and feasibility of regulating timber yields | Y | Full description of activities and conclusions; active exposure to findings | Case study report and a workshop at the end of the case study period |
| | | | Main options for achieving/demonstrating this. | | | |
| | APA (Amerindian People's Association) | 2 | Implications and feasibility of regulating timber yields | Y | Full description of activities and conclusions | Case study report and a workshop at the end of the case study period |
| | GMA (Guyana Manufacturing Association) | 2 | Implications and feasibility of regulating timber yields | Y | Full description of activities and conclusions | Case study report |

| Client Category | Specific Clients | Importance | Questions to answer/ requests made by clients | Addressed by Pilot Study? | Info needed to address needs | Outputs needed |
|---|---|---|---|---|---|---|
| Primary industry clients | Barama Company Limited | 1 | Where are the most productive forest types (FT's)? | Y | Theme maps at 1:100,000 scale showing potential yield | Case study report and a workshop at the end of the case study period |
| | | | How productive are they? | Y | Predicted yields by main forest type in keeping with national regulations/guidelines | Detailed technical outputs including modelling tools and datasets |
| | | | Likely recovery period of harvested blocks in each FT i.e. when can previously logged blocks be re-opened | Scenarios of harvesting intensity against felling cycle | Guidelines for continuing the work with GFC support | |
| | | | At what point will the yield in these blocks be more economic to work than accessing new areas? | Y | As above | As above |
| | | | What are the likely differences in costs between current practices and certifiable ones? | No | N/A | |
| | | | Comparison of results between SYMFOR and the current GFC yield modelling work | Y? | Would require silvicultural survey in BCL area | |
| | | | | | MYRLIN analysis could be substituted, using available sample plots +/- BCL's PSP information on incr,mort etc | |
| | Ituni Small Loggers Association | 1 | An important output of the study will be a management plan | No | (Case study will make a vital input into one part of the FMP) | Case study report and a workshop at the end of the case study period |

| Client Category | Specific Clients | Importance | Questions to answer/ requests made by clients | Addressed by Pilot Study? | Info needed to address needs | Outputs needed |
|---|---|---|---|---|---|---|
| | | | What is the impact of current harvesting practice on the future timber yields in the concession area | Y | Case study report and a workshop at the end of the case study period | Detailed technical outputs including modelling tools and datasets |
| | | | What management/ blocking structure is required for sustainable forest management? | Y? | Detailed technical outputs including modelling tools and datasets | Procedural guidelines for continuing the work with GFC support |
| | | | Training of members of the ISLCA in growth and yield predictions, forest management issues | Y | Staff closely involved in case study | |
| | | | Training of members of the ISLCA in the organisation of cooperative logger associations | No | N/A | |
| | | | Production of generic guidelines for this type of association | No | N/A | |
| | | | Report accessible to the non-specialist | Y | | |
| Other industry members | Other TSAs (Timber Sales Agreements) | 2 | Implications and feasibility of regulating timber yields | Y | Full description of activities and conclusions; active exposure to findings | Case study report and a workshop at the end of the case study period |
| | | | What steps are required to achieve sound yield regulation policy/practice | Y | Step by step guide to main activities required | Description of generic procedure |

| Client Category | Specific Clients | Importance | Questions to answer/ requests made by clients | Addressed by Pilot Study? | Info needed to address needs | Outputs needed |
|---|---|---|---|---|---|---|
| | Medium and small Forest Enterprises | 2 | Implications and feasibility of regulating timber yields | Y | Full description of activities and conclusions; active exposure to findings | Case study report and a workshop at the end of the case study period |
| | | | What steps are required to achieve sound yield regulation policy/practice | Y | Step by step guide to main activities required | Description of generic procedure |
| | Other logging communities/cooperatives | 2 | Implications and feasibility of regulating timber yields | Y | Full description of activities and conclusions; active exposure to findings | Case study report and a workshop at the end of the case study period |
| | | | What steps are required to achieve sound yield regulation policy/practice | Y | Step by step guide to main activities required | Description of generic procedure |
| Amerindian communities | Those engaged in commercial logging | 2 | Implications and feasibility of regulating timber yields | Y | Full description of activities and conclusions; active exposure to findings | Case study report and a workshop at the end of the case study period |
| International development agencies | PROFOR (UN Programme for Forests) | 2 | Implications and feasibility of regulating timber yields | Y | Full description of activities and conclusions | As above |
| | DFID | 1 | Implications and feasibility of regulating timber yields | Y | Full description of activities and conclusions | |
| | | | What useful developments have been achieved by this project? Are they replicable elsewhere | Y | As above | |
| | | | What are the next steps? | As above | | |
| Researchers | UG Project students | 1 | Guidance specific to the undergraduate project work being planned/ undertaken | Y | Full description of activities and conclusions; active exposure to findings | |

| Client Category | Specific Clients | Importance | Questions to answer/ requests made by clients | Addressed by Pilot Study? | Info needed to address needs | Outputs needed |
|---|---|---|---|---|---|---|
| | | | | | Support from case study personnel | |
| | Tropenbos | 2 | How do the case studies interface with Tropenbos previous findings/ current research? | Y | Full description of activities and conclusions | Case study report |
| | Edinburgh University | 1 | Implications and feasibility of regulating timber yields | Y | Full description of activities and conclusions; active exposure to findings | Copy of all outputs and involvement in workshop |
| | | | What useful developments have been achieved by this project? Are they replicable elsewhere | Y | As above | As above |
| | | | What improvements need to be made to the general/technical approaches adopted in this study | Y | As above | As above |
| | | | What are the next steps? | Y | As above | As above |
| | Oxford Forestry Institute | 1 | Implications and feasibility of regulating timber yields | Y | Full description of activities and conclusions; active exposure to findings | Copy of all outputs and involvement in workshop |
| | | | What useful developments have been achieved by this project? Are they replicable elsewhere | Y | As above | As above |

| Client Category | Specific Clients | Importance | Questions to answer/ requests made by clients | Addressed by Pilot Study? | Info needed to address needs | Outputs needed |
|---|---|---|---|---|---|---|
| | | | What improvements need to be made to the general/technical approaches adopted in this study | Y | As above | As above |
| | | | What are the next steps? | Y | As above | As above |
| Education | UG / GSA | 2 | Improved understanding of theoretical and practical yield regulation in the Guyanese context | Y | Full description of activities and conclusions; active exposure to findings | Case study report and a workshop at the end of the case study period |
| | | | Modelling tools and case studies that can be used for course practicals/ case studies | Y | Resource materials for teaching | Description of generic procedure<br><br>Copies of modelling tools, with example datasets |

# Appendix 7. Feedback on workshop

These details are summarised from a questionnaire completed by the participants at the workshop.

## Questionnaire

1. Did you achieve all the workshop milestones?
2. What did you find most valuable during the workshop?
3. When you return to your organisation, how are you going to use the skills you learnt during the workshop?
4. What additional topics would you suggest for future training workshops?
5. Please give any comments on the workshop organisation (length, structure, accommodation, travel, etc.)

## Summary of responses

1. Achievement of workshop milestones:
   Yes
   Yes but problem with data management
   **Overall: yes**

2. Most valuable aspect:
   Focus on practice (as opposed to academic and abstract)
   Possibility for exchange of ideas with counterparts
   Learning various ways of data analysis
   Chance to work with different stats packages
   Understanding basic statistical techniques
   Learning how to approach stakeholders and how to plan case study
   **Overall: statistical analysis**

3. Future use of skills learned:
   Apply skills in case studies and subsequently transfer knowledge to stakeholders
   Skills learned are of general use in issues of Indonesian technical work and Counterpart facilitation
   Presentations in GFC to share knowledge
   Develop management models based on code of practice
   Presentation to other lecturers
   Teaching students
   Implementation of model
   Write technical report
   To approach community forestry
   **Overall: Application of skills in case studies. Share and transfer of knowledge gained by presentations, papers, reports, teaching.**

4. Additional topics for future workshops:
   More practical examples
   More statistical training (4)
   Teaching of good planning and decision making
   Teaching of how to write professional report for different clients
   Linking mathematics and social science in presentation and tutorial
   Linkage between growth & yield modelling and sustainability
   **Overall: continue emphasis on practice, more generic skills with emphasis on statistics and report writing.**

5. Comments on organization:

**generally**: good
**length**: adequate; ideal. better combination of material, practice and spare time
**structure**:
Suggestion (1): 1 day testing software, 1 day application, 1 day discussion.
Suggestion (2): tutorial (basic knowledge), desk study, discussion, technical writing (case study report), game.
Appreciate skills taught but doubts if knowledge gained is sufficient to be applied in real life situations
More preparation time for material needed
Facilitation appreciated as it gave participants opportunity to develop ideas
**Accommodation and travel**: good, no problem
**Overall: positive feedback.**

# Appendix 8. Recommendations from Guyanese BTOR

| | Recommendation | For | by |
|---|---|---|---|
| 1 | Documentation of the current MYRLIN toolbox should be produced as a priority. | D. Alder | December 2001 |
| 2 | MYRLIN #1 should incorporate a new worksheet which provides summary statistics (Sampling Error, Confidence Ranges) on the initial data-set used. This will provide a useful measure of how much confidence can be placed in estimates and predictions based on the data. | Project R7278 | March 2002 |
| 3 | A summary of responses to the questionnaire completed by participants at the workshop would be useful (it could be posted on the web-site for easy distribution/ reference. | H. Wright | January 2002 |
| 4 | In the longer term, consideration should be given to the expansion of MYRLIN to cater for non-timber forest products | MOFORM Toolbox | June 2002 |
| 5 | There is an important need for in-depth training in statistical analysis to a range of stakeholder groups to support forest management in Guyana. A suitable statistical package is needed for this purpose (supported by MS Excel where appropriate). | DFID FRP and DFID Barbados | June 2002 |

# Appendix 9. Recommendations from Indonesian BTOR

| | Recommendation | For | by |
|---|---|---|---|
| 1 | More information is required to describe the requirements for data to be provided by participants for the application of MYRLIN at future workshops. | Project R7278 | June 2002 |
| 2 | Further testing of the MYRLIN toolbox is required before it is released more widely and used for additional training courses | Project R7278 | June 2002 |
| 3 | The components of the MYRLIN toolbox need to be updated in response to the feedback from participants at the Oxford workshop and the updates distributed via the MYRLIN website. | Project R7278 | Dec 2001 |
| 4 | Additional documentation is required to support the application and provision of training for tools such as MYRLIN (and SYMFOR) to support yield regulation. These documents should stress practical applications in forestry. | MOFORM | June 2002 |
| 5 | The yield regulation pilot studies in Indonesia and Guyana will require ongoing technical support for the MYRLIN toolbox | Project R7278 | Dec 2001 |
| 6 | The approaches developed under the MYRLIN toolbox should be extended to consider yield regulation of NTFP | MOFORM | June 2002 |
| 7 | Additional training is required in some aspects of basic forest management including the underlying principles of yield regulation and the practice of sustainable forest management. | DFID Indonesia | June 2002 |
| 8 | Professionals with responsibility for yield regulation activities require significant additional training in data processing and statistical analysis to support their current job requirements and the provision of adequate statistical software to support their function. | DFID Indonesia | December 2002 |
| 9 | The data analysis post processor (2) needs to completed by Dr Phillips and tested by staff during the pilot studies in Indonesia Guyana | P. Phillips | December 2001 |

| | Recommendation | For | by |
|---|---|---|---|
| 10 | The training notes on data statistical analysis need to be completed and distributed by the Edinburgh FRP team | P. van Gardingen | December 2001 |
| 11 | Suitable statistical training courses and associated software needs to be identified to support partners in FRP yield regulation studies | P. van Gardingen | December 2001 |
| 12 | FPL staff require additional training and technical assistance to support local initiatives in multistakeholder forestry. | DFID MFP | June 2002 |