### Appendix A

#### List of Experts.

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Name of the Experts</th>
<th>Qualification</th>
<th>Experience</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>A.Ramana Rao</td>
<td>Arjuna Awardees, Dronacharya Awardees, FIVB Coaches Course Instructor. NIS Diploma in Volleyball, FIVB Coaches Course I,II &amp; III,</td>
<td>15 years</td>
<td>Andra Pradesh</td>
</tr>
<tr>
<td>2.</td>
<td>M.H. Kumara</td>
<td>NIS Diploma in Volleyball, MS in Coaching.</td>
<td>20 years</td>
<td>Karnataka</td>
</tr>
<tr>
<td>3.</td>
<td>B.A. Balaji</td>
<td>NIS Diploma in Volleyball.</td>
<td>25 years</td>
<td>Karnataka</td>
</tr>
<tr>
<td>4.</td>
<td>Naregeta</td>
<td>NIS Diploma in Volleyball, MS in Coaching</td>
<td>12 years</td>
<td>Punjab</td>
</tr>
<tr>
<td>5.</td>
<td>M.M. Zama</td>
<td>FIVB Coaches Course I</td>
<td>20 years</td>
<td>Maharashtra</td>
</tr>
</tbody>
</table>
Appendix A (Cont......)

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Name of the Experts</th>
<th>Qualification</th>
<th>Experience</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.</td>
<td>Bir Singh Yadav</td>
<td>NIS Diploma in Volleyball, MS in Coaching, M.P.Ed, PhD, FIVB Coaches Course I &amp;II</td>
<td>15 years</td>
<td>Chandigarh</td>
</tr>
<tr>
<td>7.</td>
<td>B.C. Kaushal</td>
<td>NIS Diploma in Volleyball.</td>
<td>30 years</td>
<td>Chandigarh</td>
</tr>
<tr>
<td>8.</td>
<td>Daljit Singh</td>
<td>NIS Diploma in Volleyball, MS in Coaching</td>
<td>17 years</td>
<td>Punjab</td>
</tr>
<tr>
<td>9.</td>
<td>Ajay Jangda</td>
<td>NIS Diploma in Volleyball, MS in Coaching</td>
<td>13 years</td>
<td>Punjab</td>
</tr>
</tbody>
</table>
Appendix B (Cont.....)

Cover page
Appendix B (Cont.....)

PES-VB Manual

Introduction

Performance Evaluation System in Volleyball is an output of Doctoral level research work. This PES-VB was developed with purpose to evaluate the player performance during live match or friendly matches. It helps the Volleyball coaches in various angles, especially in applying SWOT analysis, which means the Strength and Weaknesses of the winning team and the Opportunity and Treads offered by the opponent team.

This tool is specially developed for Indian volleyball players. To develop observational criteria, volleyball field expert’s opinion was taken into consideration. The tool was framed out in five rating scales, which was developed to cover evaluation of all the skills with immediate effect of every action. The tool is not very user friendly and cannot be handled by a common volleyball personnel, because the tool is developed with such a frame work, that it seems to be objective but more area of evaluation is covered by the subjective judgment or opinion. Therefore, it is recommended to be used by highly qualified, experienced and familiar coaches or persons. Before application of this system one must understand the detailed content of observation and it is also recommended to go through several practice sessions with match videos and then live matches. Coaches can also conduct clinic for their assistant and participants, which will help them to get familiar with the system.

Important factors to be considered for good rating scale.

a. Traits must be clearly defined.

b. Number of division on the scale should neither be too numerous nor too few.

c. The rater may be asked to quote instances in support of his judgment.

d. Raters should be instructed to omit ratings of characteristics, if they had little or no opportunity to observe the traits.
Appendix B (Cont.....)

e. The rater should be instructed to avoid the generosity error, the logical error and error due to halo effect.

f. Rating from several observes should be combined whenever possible (Dandekar, W.N., 1999).

g. State objectives in term of observable behavior.

h. Select traits that determine success.

i. Determine the value of each trait in relation to successes.

j. Define selected traits with observable behavior

k. Select and develop the appropriate scale for the rating instrument.

l. Select the degree of success or attainment for each traits and define them with observable behavior.

m. Try out and revise the rating scale.

n. Use the rating scale in an actual test situation (Marrow, J.R, et.al, 2005).

Above all discussed factors indicate that, rating scale is most effective tool to evaluate player performance during play.
### Service Rating Scale of Volleyball

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Effects of Actions / Situations</th>
<th>Points</th>
<th>Grades</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Ace Serve</td>
<td>05</td>
<td>Excellent</td>
</tr>
<tr>
<td>2.</td>
<td>Free ball to serving side</td>
<td>04</td>
<td>Very good</td>
</tr>
<tr>
<td>3.</td>
<td>Advantage In</td>
<td>03</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td>Pass reaches to the opponents secondary target</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Advantage Out</td>
<td>02</td>
<td>Satisfactory</td>
</tr>
<tr>
<td></td>
<td>a. Pass reaches to the opponent’s Primary target.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Non Effective Serve.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Missed serve</td>
<td>01</td>
<td>Poor</td>
</tr>
</tbody>
</table>

Appendix B (Cont…)

### Appendix B (Cont…)

#### Attack Rating Scale of Volleyball

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Effects of Actions / Situations</th>
<th>Points</th>
<th>Grades</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Ace Attack</td>
<td>05</td>
<td>Excellent</td>
</tr>
<tr>
<td>2.</td>
<td>Free ball Situation to Attacking side</td>
<td>04</td>
<td>Very good</td>
</tr>
<tr>
<td>3.</td>
<td><strong>Advantage In</strong></td>
<td>03</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td>a. Dig reaches to the opponents secondary target</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Blocked out ball reaches out of court of attacker’s side.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td><strong>Advantage Out</strong></td>
<td>02</td>
<td>Satisfactory</td>
</tr>
<tr>
<td></td>
<td>Dig reaches to the opponents Primary target</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non Effective Attack</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Attack become direct set for opponents Attackers.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Missed Attack</td>
<td>01</td>
<td>Poor</td>
</tr>
</tbody>
</table>
Appendix B (Cont…)

Block Rating Scale of Volleyball

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Effects of Actions / Situations</th>
<th>Points</th>
<th>Grades</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Kill block.</td>
<td>05</td>
<td>Excellent</td>
</tr>
<tr>
<td>2.</td>
<td>Block creates Free ball Situation to blockers side</td>
<td>04</td>
<td>Very good</td>
</tr>
<tr>
<td>3.</td>
<td>Advantage In</td>
<td>03</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td>Dig reaches to the secondary target of the opponents.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Blocked out ball reaches out of court of blocker’s side.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Advantage Out</td>
<td>02</td>
<td>Satisfactory</td>
</tr>
<tr>
<td></td>
<td>Dig reaches to the Primary target of the opponents</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non Effective block.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Block become direct set for opponents Attackers.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Missed Block</td>
<td>01</td>
<td>Poor</td>
</tr>
</tbody>
</table>
# Appendix B (Cont…)

## Pass Rating Scale of Volleyball

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Effects of Actions / Situations</th>
<th>Points</th>
<th>Grades</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pass reach primary target with <em>extraordinary</em> actions</td>
<td>05</td>
<td>Excellent</td>
</tr>
<tr>
<td>2.</td>
<td>a. Pass reach primary target under <em>normal</em> situation.</td>
<td>04</td>
<td>Very good</td>
</tr>
<tr>
<td></td>
<td>b. Pass reaches to <em>opponents court</em> (opponents errors)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Pass became <em>tactical set</em> for attacker</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. Pass reach Secondary target with <em>extraordinary</em> actions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td><strong>Advantage In</strong></td>
<td>03</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td>a. Pass reach <em>secondary</em> target</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Pass became <em>direct set</em> for attacker.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td><strong>Advantage Out</strong></td>
<td>02</td>
<td>Satisfactory</td>
</tr>
<tr>
<td></td>
<td>a. <em>Free ball</em> situation to opponents</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. <em>Non effective</em> Pass</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td><strong>Missed Pass</strong></td>
<td>01</td>
<td>Poor</td>
</tr>
</tbody>
</table>
Appendix B (Cont…)

Set Rating Scale of Volleyball

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Effects of Actions / Situations</th>
<th>Points</th>
<th>Grades</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>No block situation / Single block situation</td>
<td>05</td>
<td>Excellent</td>
</tr>
<tr>
<td>2.</td>
<td><strong>Double</strong> block Situation under <strong>difficult</strong> first pass / dig</td>
<td>04</td>
<td>Very good</td>
</tr>
<tr>
<td>3.</td>
<td><strong>Advantage In</strong> Group block Situation under <strong>easy</strong> first pass / dig</td>
<td>03</td>
<td>Good</td>
</tr>
<tr>
<td>4.</td>
<td><strong>Advantage Out</strong> Free ball situation to the opponents side / Non – effective set for attacker</td>
<td>02</td>
<td>Satisfactory</td>
</tr>
<tr>
<td>5.</td>
<td><strong>Missed</strong> set</td>
<td>01</td>
<td>Poor</td>
</tr>
</tbody>
</table>
### Appendix B (Cont…)

#### Dig Rating Scale of Volleyball

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Effects of Actions / Situations</th>
<th>Points</th>
<th>Grades</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Retrieved most difficult ball with extraordinary dig action and ball reaches Primary target.</td>
<td>05</td>
<td>Excellent</td>
</tr>
<tr>
<td>2.</td>
<td>a. Retrieved most difficult ball with extraordinary dig action and ball reaches secondary target.</td>
<td>04</td>
<td>Very good</td>
</tr>
<tr>
<td></td>
<td>b. Tactical dig becomes set for attacker.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td><strong>Advantage Out</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Easy dig reaches to primary target</td>
<td>03</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td>b. Dig became sudden set for attackers.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td><strong>Advantage Out</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Free ball Target.</td>
<td>02</td>
<td>Satisfactory</td>
</tr>
<tr>
<td></td>
<td>b. Easy Dig reaches to the secondary opponents</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>C. Non effective Dig</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Missed Dig</td>
<td>01</td>
<td>Poor</td>
</tr>
</tbody>
</table>
Appendix B (Cont…)

Purpose of this manual: To provide guideline to use the observation criteria and understand the system.

Target Age Group: Senior, Youth and Junior male and female volleyball players.

How to Organise Evaluation Session

![Flowchart: How to Organize Evaluation Sessions]

Prior to applying the observation criteria in an actual match, one must go through the clinic or training for PES-VB. It helps to give a clear idea about the content and also provides sufficient practice sessions, which ultimately prepare the PES-VB personal to work efficiently.

How to conduct clinic

Clinic needs to be conducted in two divisions, 1. Class room session and 2. Field session. Class room session is very important to understand the observation criteria and its implementation. As it is mentioned earlier, any highly qualified and experienced person can deal with this system, therefore practice is required more than theory. Class room session can be schedule for two days as below
Appendix B (Cont…)

Day 1: Theory

1. Introduction to PES-VB
2. Introduction of observational criteria / Rating scale
3. Demonstration and explanation by using match videos
4. Introduction of data evaluation sheet
5. Introduction of data analyzer sheet.
7. Interaction with experts, if required.

Day 2: Practice

1. Demonstration and practice of calls with match videos.
2. Demonstration and practice of Data collection sheet with match videos.
3. Demonstration and practice of Data analyzer sheet

Human Resources for Clinic

1. Callers / observer (two)
2. Hand Acquisition / writer (two)
3. Runner (two)
4. Data analyzer (two)
5. Volleyball player (two Teams)
6. Referrers (two)
7. Ball Keepers (two)
Appendix B (Cont…)

8. Video Recorder (two)

9. Jr. Supervisor (two)

10. Supervisor (one)

Equipments required for Clinic

1. Data Collection Sheet

2. Rotation order slip

3. List of players name and numbers.

4. Schedule of competition

5. Data analyzer sheet

6. Call recorder / decta phone.

7. Volleyball matches videos.

8. Over head projector

9. PES – VB Rating Scale

10. Volleyball Court and Volleyballs.

Training of observer

After introduction general ideas of PES-VB and giving a detailed explanation of the observational criteria, training of observer, writer and analyzer should start.
Appendix B (Cont…)

Observer should have

Detailed knowledge and interpretation of observational criteria.

Observer must have knowledge about the sequence of calls (action – player jersey number – evaluation) and flow or rhythm of calls.

1. Highly concentration.

2. Good coordination with Writer.

3. Good reaction time and quick decision making ability.

4. Observer must be aware of player’s jersey numbers of team observing by him/her.

5. Observer must have knowledge about Call recorder device.

Training of observer must follow.

Practice of calls by observer without using matches videos; it helps to make them familiar with criteria and system of evaluation.

Practice of calls by observer with using matches videos.

Supervisor should correct the calls by given by the observer; specially focus on flow and rhythm of calls, sequence of calls, and evaluation as per observation criteria and so on.

Discussion and interaction of subjective evaluation (rating on 2,3,4 in Scoring skills and 2,3,4,5 on Non – Scoring skill), if required.

Training Of Writter

After getting with observer function, writer training should start.
Appendix B (Cont…) 

Writer should have

1. Highly concentrated on observer calls.
2. Properly input of data into data collection sheet.
3. Verification of all important and necessary information pre and post evaluation..
4. Use of call recorders, if required

Training should follow,

1. Writer should be train on how to fill each detail in concerned column of data collection sheet.
2. Prior to evaluation fill every essentials detail in sheet.
3. Practice combine on writing of calls give by the supervisor.
4. Writing practice by coordinating with single or individual observer.
5. After evaluation verify every details mentioned in sheet.
6. Correct the sheets by observer.

TRAINING OF DATA ANALYZER

After practicing on observer and writer function, data analyzer training should start.

Data analyzer must have,

1. Detailed knowledge about the observation criteria.
2. Good command on data interpretation.
Appendix B (Cont…)

3. Good coordination with writer.


Field Session

Pre Session

1. PES-VB

1. Division of all PES-VB persons / participant into two unit as unit A and B.

2. Preparation and allotment of observation schedule to both unit.

3. The schedule of observation must follow the all function for all participant.

4. Sitting Arrangement

1. PES-VB persons : - (Observer, Writer and Analyzer) see diagram.

2. Video Recorder and camera : Beside observer (see diagram)

3. Sr. Supervisor - opposite Scorer (see diagram)

4. Jr. Supervisor – behind observer (see diagram)

5. Runner pathway - (see diagram)

6. Ball Keeper - (see diagram)

During Session.

Role of Senior Supervisor

If required provide guidance to Junior Supervisor.
Appendix B (Cont…)

Role of Jr. Supervisor

1. Confirm all necessary equipments and material.

2. Observe and guide the duties of observation unit. (coordination observer, writer and analyzer)

3. Control on function of cameraman and runner.

4. Control on observers calls (calls, voice and flow)

5. Control on analyzer (speed and correct interpretation)


Role of Observer

1. Verify the preparation of observation unit.

2. Observe the position or line up of observation team and confirm with line up sheet.

3. During match, observe the actions and effect of that actions and interpret as per the rating scale.

4. The interpretation given by observer is known as call.

5. The call should be loud hearable and clear to the writer.

Role of writer

1. Prior to began observation writer should mention necessary information in data sheet.

2. Verify the line up of observation team.

3. Fill the data interoprated by observer.

4. Verify completed data sheet after the match
Appendix B (Cont…)

Role of Runner

1. Record observation team line up and submit to writer.

2. Collect complete analysis sheet from analyzer and deliver to asst. Coach for observation.

Role of Analyzer

Analyzer should analyze each sheet after receiving from writer and interpretation should forward to asst. Coach

Post Session

1. Verify the observer, writer and analyzer function by observing match videos and its related data and analyzer sheet.

2. Point out corrections and discuss on it.

3. Overall review of sessions.
Appendix B (Cont…)

Data Sheet
Appendix C

Consent Letter to Librarians

From
Ms. Madhuri Sadgir
Research Student
CACPE Centre, Pune
Pune University

To
The Librarian,

________________

________________

Dear Sir/Madam,

I request permission to refer to the material in your esteemed library for my PhD work titled “Development of Performance Evaluation System in Volley Ball”.

Thanking you in anticipation,

Yours sincerely,

________________

(Madhuri Sadgir)
Appendix D

Consent Letter to Volleyball Experts

From
Ms. Madhuri Sadgir
Research Student
CACPE Centre, Pune
Pune University

To
The __________

______________

Dear Sir/Madam,

I am a PhD student in the above-mentioned institution. The title of my research topic is “Development of Performance Evaluation System in Volley Ball”. For this purpose, I am developing a performance evaluation rating scale. I request you to kindly go through the rating scale for content validity as an expert and oblige. Please indicate whether the items in tool are valid and suggest modifications, if any.

Thanking you in anticipation,

Yours sincerely,

______________

(Madhuri Sadgir)
Appendix E
Consent Letter to the VFI Secretary

From
Ms. Madhuri Sadgir
Research Student
CACPE Centre, Pune
Pune University

To
The Secretary
Volley Ball Federation of India
Chennai

Dear Sir/Madam,

I am developing a tool as part of my PhD work titled “Development of Performance Evaluation System in Volley Ball”. I request you to kindly permit me to record the pre-quarter final, quarter final, semi-finals, third place and final matches from men’s category as a sample of my research which will be conducted in the December 2010.

Thanking you in anticipation,

Yours sincerely,

______________
(Madhuri Sadgir)
Appendix F
Consent Letter to the Try Out Team Coaches

From
Ms. Madhuri Sadgir
Research Student
CACPE Centre, Pune
Pune University

To,
The___________

________________
________________

Dear Sir/Madam,

I am developing a tool as part of my PhD work titled “Development of Performance Evaluation System in Volley Ball”. I request you to kindly make available one day match between Karnataka Police team and Army team to enable me to try out my tool and verifying its applicability on live match.

Thanking you in anticipation,

Yours sincerely,

_______________
(Madhuri Sadgir)