

### **General Information Questionnaire**

General Information Interview Statement: Please tick / page that matches you and fill in the space  
( ) that matches your relevant information.

1. ID..... age: ..... years, date of birth .....

Sex ( ) Male ( ) Female Marital Status ( ) Single ( ) Couple ( ) Widow, Divorced

2. Current Address: District ..... Province.....

3. Education Level. ( ) Not Studied ( ) Primary ( ) Junior High School  
( ) High school ( ) Bachelor's degree or higher

4. Currently, he is engaged in his main occupation. ( ) farming ( ) gardening  
( ) farming others.....

5. Have you ever suffered an injury at work. ( ) Never ( ) Ever

6. Working accident at the wrist. ( ) No ( ) Yes

7. Have you ever been injured at work to the extent that you had to stop working?  
( ) No ( ) Yes, please specify:.....

8. Have you ever had an injury to your hand or wrist? ( ) No ( ) Yes, please  
specify:.....

9. Does your work involve repetitive use of your hands or arms for extended periods?  
( ) No ( ) Yes

10. How long have you been weaving Phraewa silk? ..... years ..... months

11. Do you use a pulling device to assist in Praewa silk weaving? ( ) No ( ) Yes, please specify:  
:.....

12. How many hours per day do you spend weaving silk? ..... hours/day

13. Do you have a secondary occupation? ( ) No ( ) Yes, please specify: :.....

14. Do external environmental factors such as noise, light, or temperature affect your Praewa silk  
weaving? ( ) No ( ) Yes, please specify :.....

15. Do you experience stress while weaving Praewa silk ? ( ) No ( ) Yes, please specify:  
:.....

## Anthropometry Assessment

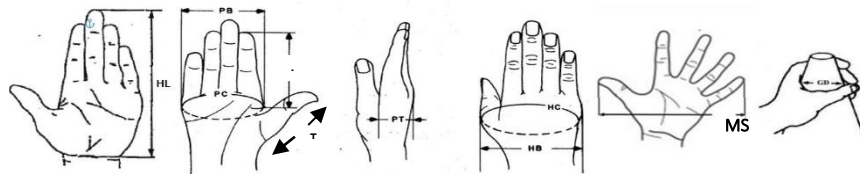
ID number \_\_\_\_\_ Date \_\_\_\_ / \_\_\_\_ / \_\_\_\_

**Objective:** To assess the body anthropometry measurements in a static position for the hands across 10 dimensions.

**Equipment:** Sliding Caliper (in cm)

### Test / Method:

1. The participant should remain in a static position while seated.
2. Adjust the Sliding Caliper measurement device to ensure it is most suitable and convenient for measurement.
3. The participant should maintain a static position while measurements are taken according to the 10 dimensions shown in the images.
4. The results will be recorded and analyzed.



Dimensions (in cm.)	Right		Left	
	Mean	S.D.	Mean	S.D.
1. Hand length : HL				
2. Palm breadth : PB				
3. Palm circumference : PC				
4. Thumb Finger Length : TFL				
5. Index Finger Length : IFL				
6. Palm Thickness : PT				
7. Hand Circumference : HC				
8. Hand Breadth : HB				
9. Maximum Spread : MS				
10. Grip diameter : GD				

## **Maximum Muscle Contraction Assessment**

ID number \_\_\_\_\_ Date \_\_\_\_ / \_\_\_\_ / \_\_\_\_ Right / Left

**Objective:** To assess the Maximum Muscle Contraction (%MVC)

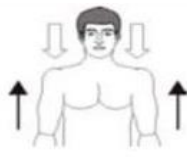



**Equipment:** Electromyography (EMG)

### **Test / Method:**

1. Clean the skin and muscles of all 4 muscle groups with alcohol, focusing on the measurement areas, including the origin, insertion points, and muscle contraction characteristics of each muscle group.
2. Measure the location of the muscle groups from the reference points.
3. Attach the electrodes and cable wires.
4. Conduct the Maximum Voluntary Contraction (MVC) test.
5. Test muscle activity and record the electrical activity of all 4 muscle groups during maximum muscle exertion and while the participant is weaving Phraewa silk. The maximum electrical activity is obtained while the participant is in various positions (as shown in the images below the table), with the researcher applying resistance for 5 seconds twice, allowing a 2-minute rest between tests to avoid muscle fatigue. The Maximum Voluntary Contraction (%MVC) will be calculated to compare muscle activity during work with the maximum muscle contraction values.
6. Collect Maximum Voluntary Contraction data using 4 different testing positions. Perform 2 tests and use the highest value from each. Tests should be spaced 15 minutes apart to prevent fatigue of the participant.
7. Analyze the data and interpret the results.

### **Data**

Maximum voluntary contraction)	Time		SD
	1	2	
Trapezius muscle			
Biceps brachii muscle			
Brachioradialis muscle			
Wrist Flexor group muscle			

Muscle	Position	Test
Trapezius p. Descendens		P: Shoulder up R: Press the shoulder down
Biceps Brachii		P: Pull hand to face R: Pull hand out to face
Brachioradialis		P: Wrist up at radial diviation R: Press the wrist down
Wrist Flexor group muscle		P: Wrist flexion R: Press the wrist extension

ที่มา: Konrad P.(2005). *The ABC of EMG: A practical introduction to kinesiological electromyography*. USA.: Noraxon INC.

## **Hand Activity Level Assessment**

ID number \_\_\_\_\_ Date \_\_\_\_ / \_\_\_\_ / \_\_\_\_

**Objective:** To assess the frequency, duration of rest, and movement speed during work that involves both static and dynamic exertion in the hand area.

**Equipment:** ACGIH for HAL assessment tool, Video recording camera

**Test / Method:**

1. The participants will weave Phraewa silk as usual.
2. The researcher will record a video during the weaving process.
3. The researcher will use the ACGIH for HAL assessment tool.
4. The results will be recorded and analyzed.

**Data**

<b>Job Description.....</b>	<b>Right</b>	<b>Left</b>
1. Hand Activity Score	.....	.....
2. Hand Force Level Score	.....	.....
3. Hand Force Level Score / Hand Activity Score	.....	.....
4. Assessment Results	> TLV <input type="text"/>	> TLV <input type="text"/>
TLV = 0.78	AL to TLV <input type="text"/>	AL to TLV <input type="text"/>
AL = 0.56	< AL <input type="text"/>	< AL <input type="text"/>

**Praewa Silk Length Assessment**

ID number \_\_\_\_\_

Date \_\_\_\_ / \_\_\_\_ / \_\_\_\_

**Data**

Device of Praewa Silk	Praewa Silk Length (in cm.)		
	15 minutes	25 minutes	40 minutes
A : Traditional cloth pulling			
B : Standard cloth-pulling device			
C : Cloth-pulling device			

### Satisfaction Assessment

This questionnaire has been developed with the objective of surveying the satisfaction of Praewa silk weavers regarding the use of cloth-pulling devices based on ergonomic principles. The aim is to provide guidance for improving the production of tools, as well as enhancing the effectiveness of Praewa silk weaving and reducing the risk of musculoskeletal injuries.

*Very high = 5, High = 4, Moderate = 3, Low = 2, Very low = 1*

Satisfaction of Praewa silk weaving	Level				
	1	2	3	4	5
<b>Quality of devices.</b>					
1. The surface of the device is nonslip.					
2. There is a good grip between the pulling device and the hand.					
3. The size of the device handle is appropriate.					
4. The length of the device is appropriate.					
5. The device is durable.					
<b>Quality of Praewa silk.</b>					
6. The smoothness of the fabric.					
7. The accuracy of the fabric pattern.					
8. The fabric density.					
9. The aesthetic quality of the fabric.					
10. The strength of the silk thread when using the cloth-pulling device.					
<b>Effect on the wrist and fingers.</b>					
11. The muscle exertion in the hand is reduced.					
12. The pressure on the wrist surface is reduced.					
13. The numbness in the wrist and fingers is reduced.					
14. The wrist and finger flexion is reduced.					
15. Muscle fatigue in the hand and fingers is reduced.					
<b>Application</b>					
16. The device is compact and lightweight.					

Satisfaction of Praewa silk weaving	Level				
	1	2	3	4	5
17. The device is innovative, beautiful, and suitable for silk weaving.					
18. The device is easy to use and allows for easy weaving of various patterns.					
19. The device is durable for use.					
20. The device is safe for the user.					