

Legend

SIMBOLO	
	Basin Limit
	Lakes
	River Order - Strahler
	1
	2
	3
	4
	5
	6
	Cp Puna grass
	Cu Cultivated areas of the coastal region
	Dc Coastal desert
	Mh Wet scrub
	Ms Dry scrub
	Msh Humid Scrubland / Sub wet scrub
	Pj Grassland

PROJECT OF THE PROTECTION OF FLOOD PLAIN AND VULNERABLE RURAL POPULATION AGAINST FLOODS

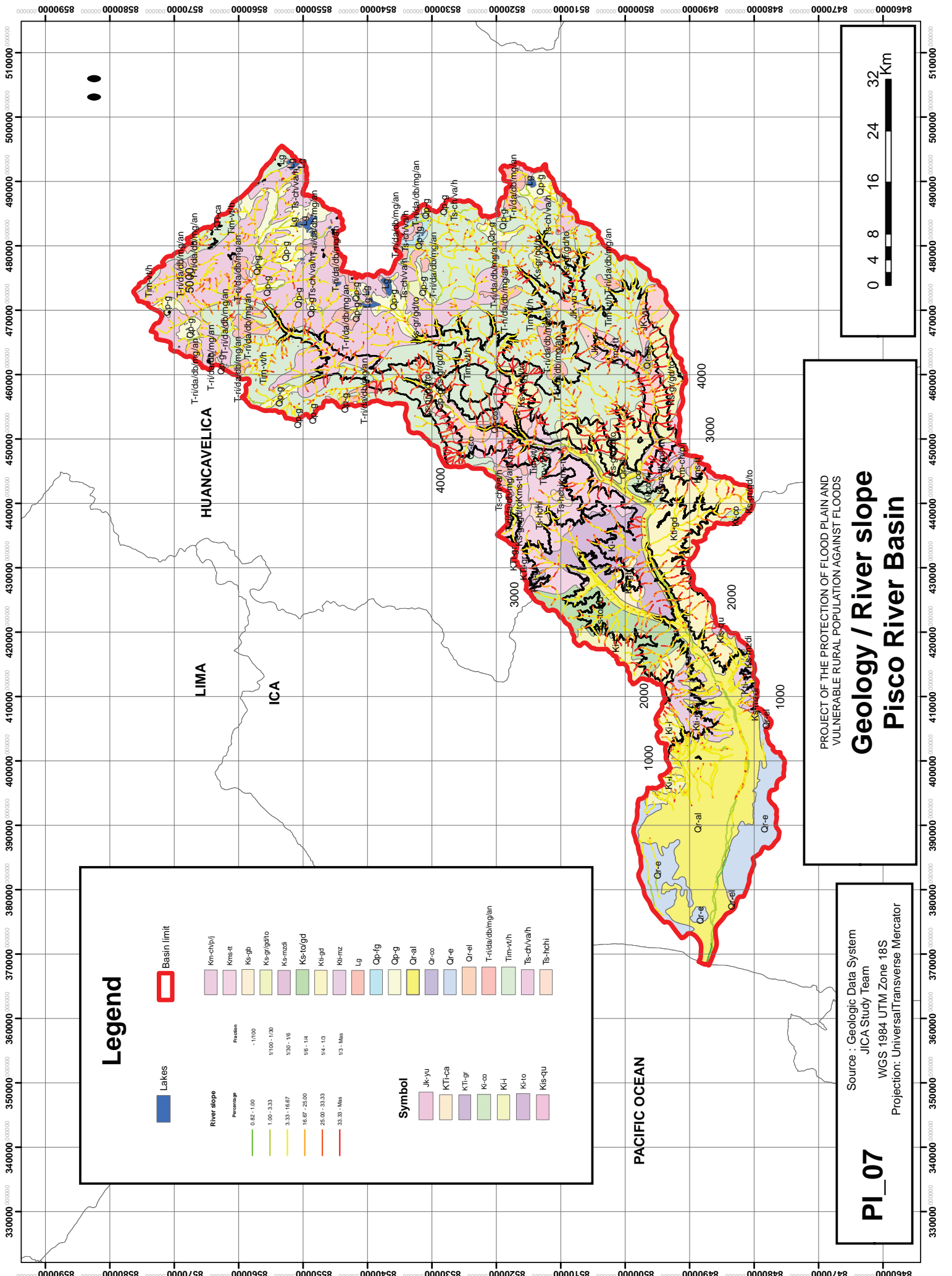
Forestry - 1995

Pisco River Basin

PI_06

Source : Dirección General Forestal - 1995
 WGS 1984 UTM Zone 18S
 Projection: UniversalTransverse Mercator

Scale : 1 : 500,000



Legend

- Lakes
 - Basin limit
- | River slope | Fraction |
|---------------|--------------|
| 0.02 - 1.00 | - 1/100 |
| 1.00 - 3.33 | 1/100 - 1/33 |
| 3.33 - 16.67 | 1/33 - 1/6 |
| 16.67 - 25.00 | 1/6 - 1/4 |
| 25.00 - 33.33 | 1/4 - 1/3 |
| 33.33 - Mas | 1/3 - Mas |
-
- | Symbol |
|-----------------|
| Jk-ju |
| KT-ca |
| KT-gr |
| Ki-co |
| Ki-i |
| Ki-to |
| Ki-s-qu |
| Kn-ch/p/j |
| Kns-tt |
| Ks-gb |
| Ks-gr/g/d/t/o |
| Ks-mz/l |
| Ks-to/g/d |
| Ki-g/d |
| Ki-m/z |
| Lg |
| Qp-f/g |
| Qp-g |
| Qr-al |
| Qr-co |
| Qr-e |
| Qr-el |
| T-r/da/db/mg/an |
| Tim-v/h |
| Ts-ch/va/h |
| Ts-hch/i |

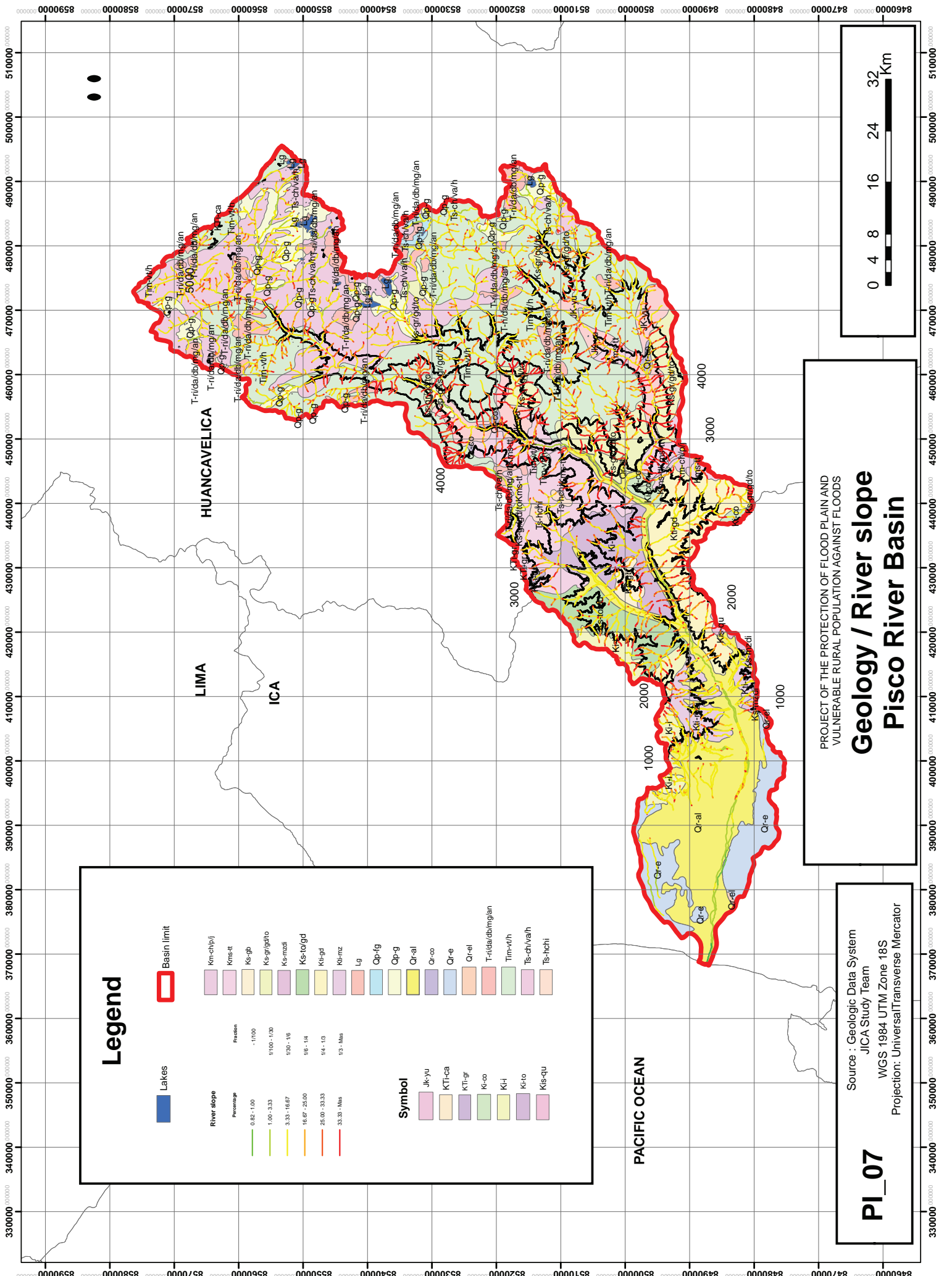
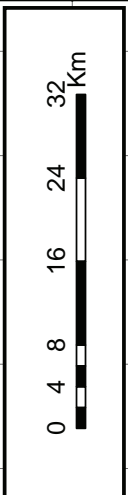
PI_07

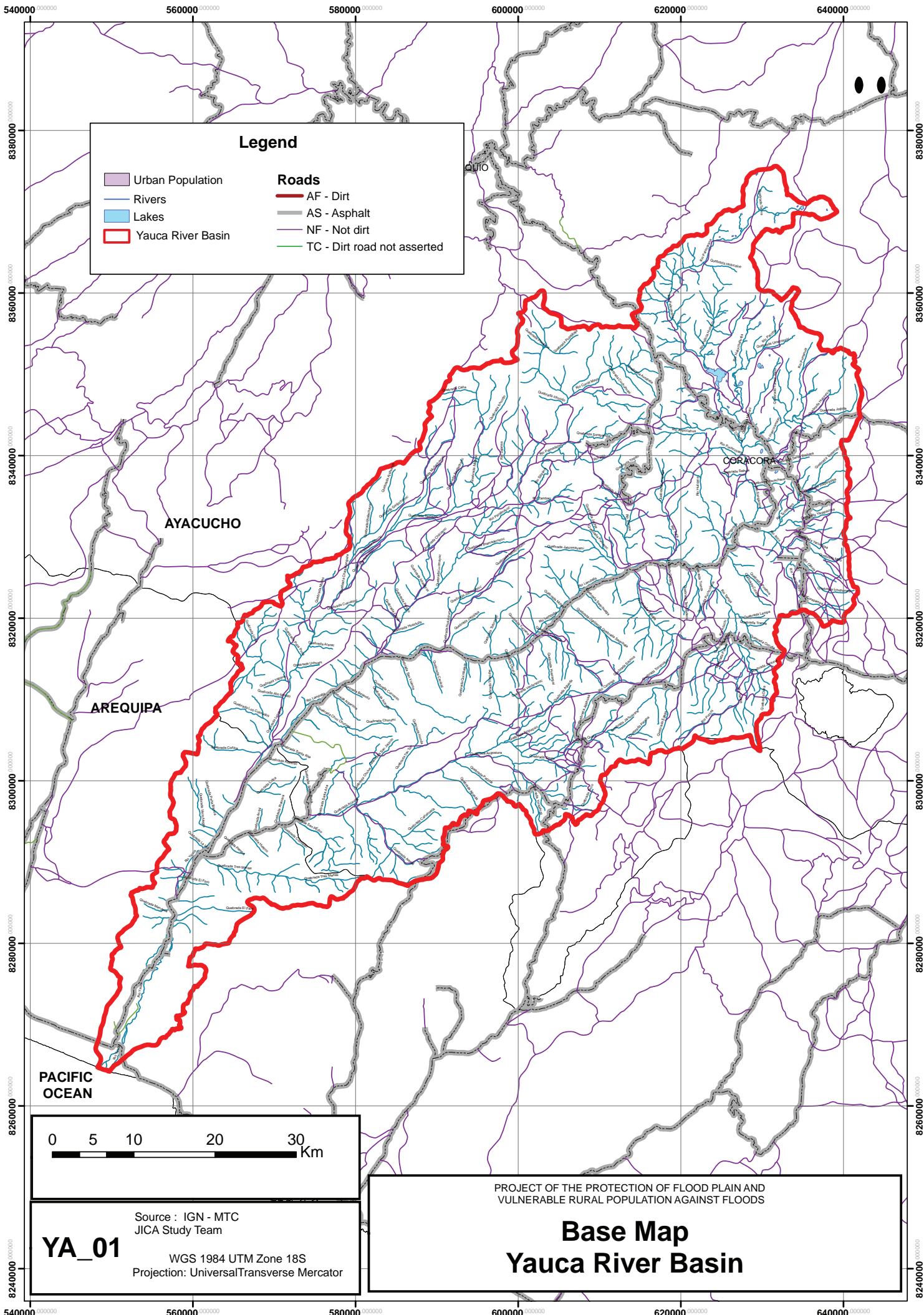
Source : Geologic Data System
 JICA Study Team
 WGS 1984 UTM Zone 18S
 Projection: Universal Transverse Mercator

PROJECT OF THE PROTECTION OF FLOOD PLAIN AND VULNERABLE RURAL POPULATION AGAINST FLOODS

Geology / River slope

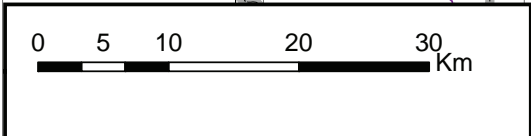
Pisco River Basin





Legend

 Urban Population	Roads
 Rivers	 AF - Dirt
 Lakes	 AS - Asphalt
 Yauca River Basin	 NF - Not dirt
	 TC - Dirt road not asserted



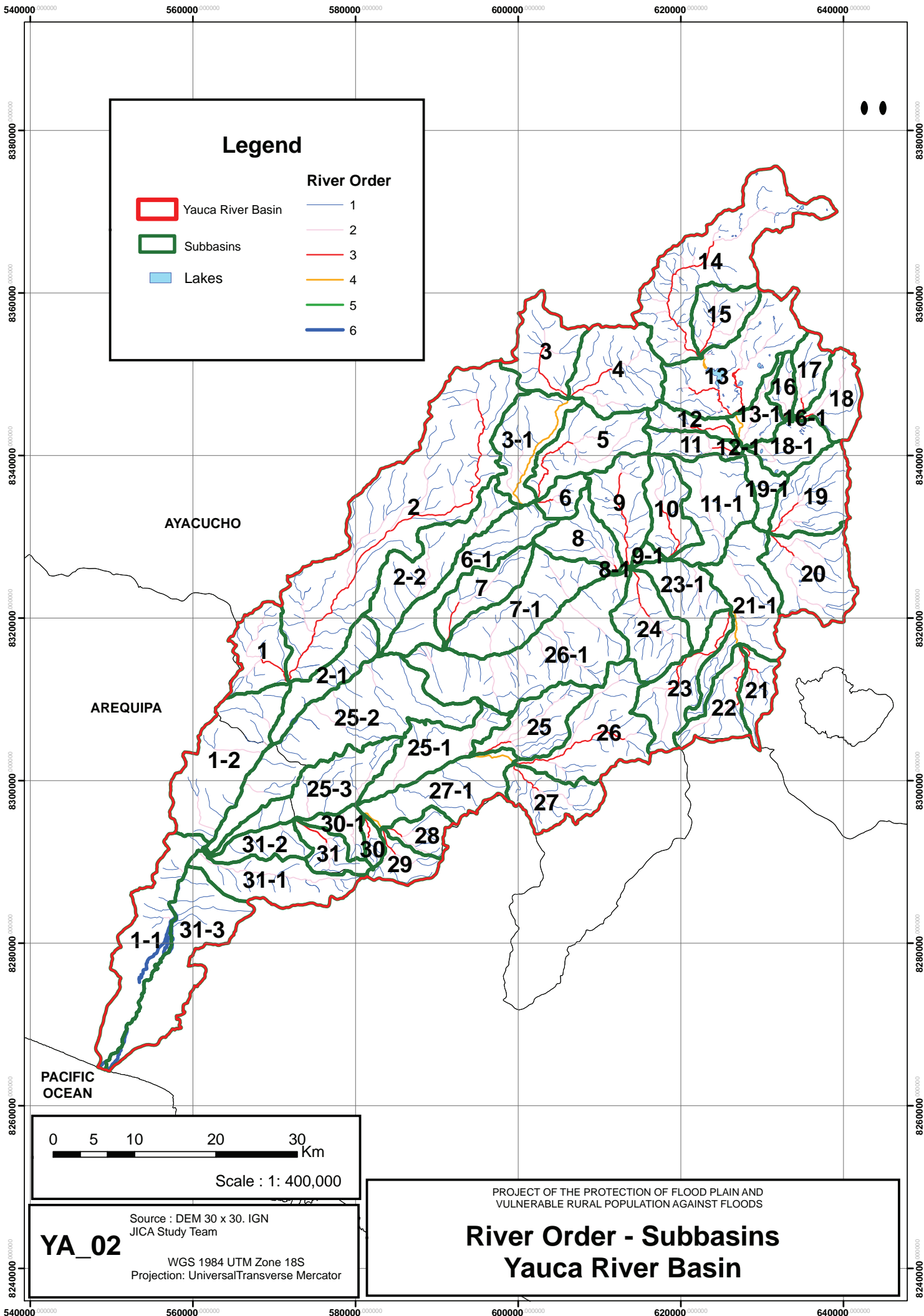
YA_01

Source : IGN - MTC
 JICA Study Team

WGS 1984 UTM Zone 18S
 Projection: UniversalTransverse Mercator

PROJECT OF THE PROTECTION OF FLOOD PLAIN AND
 VULNERABLE RURAL POPULATION AGAINST FLOODS

Base Map
Yauca River Basin



Legend

<ul style="list-style-type: none"> Yauca River Basin Subbasins Lakes 	<h4 style="margin: 0;">River Order</h4> <ul style="list-style-type: none"> 1 2 3 4 5 6
---	--

0
5
10
20
30
Km

Scale : 1: 400,000

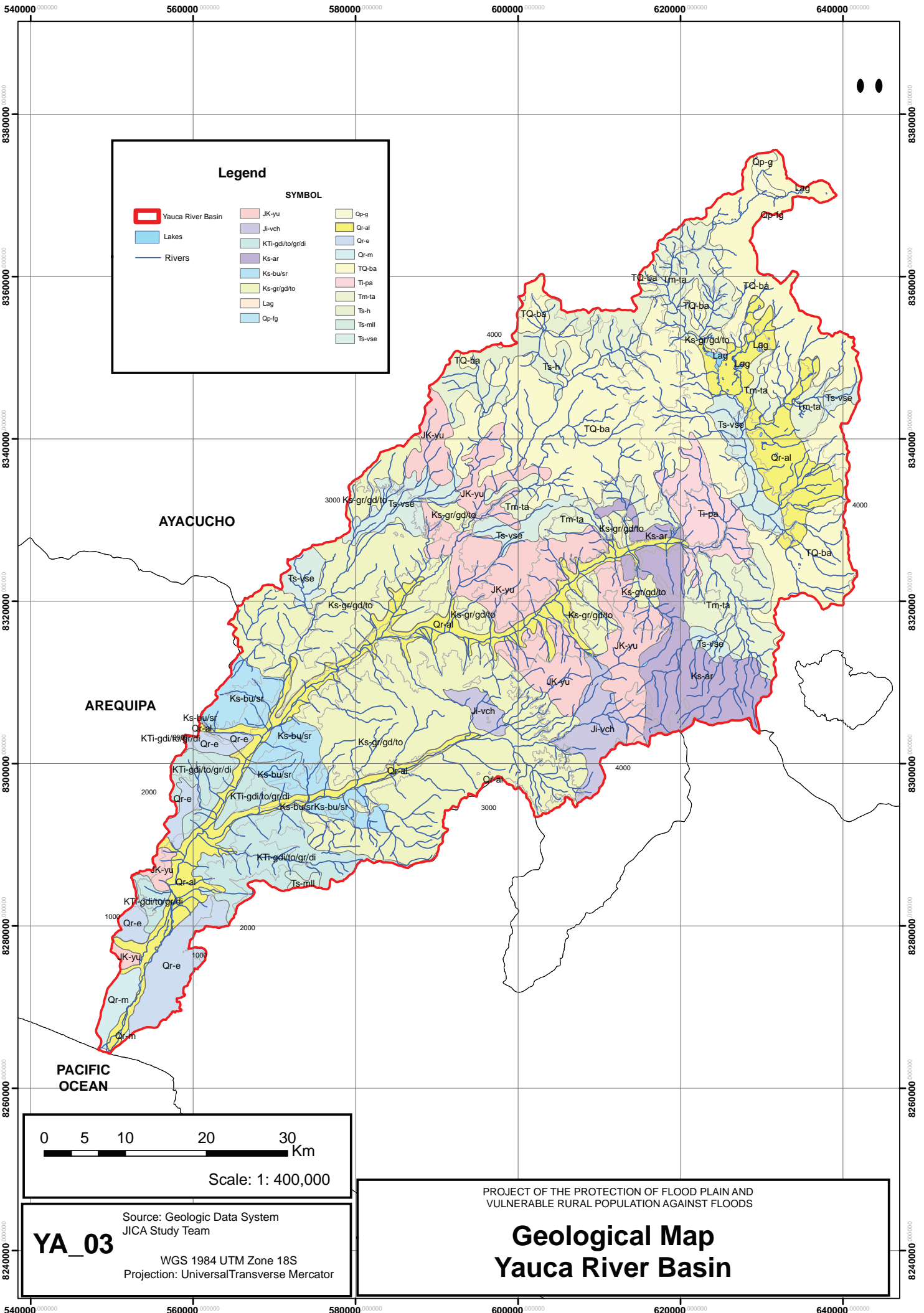
YA_02

Source : DEM 30 x 30. IGN
JICA Study Team

WGS 1984 UTM Zone 18S
Projection: UniversalTransverse Mercator

PROJECT OF THE PROTECTION OF FLOOD PLAIN AND
VULNERABLE RURAL POPULATION AGAINST FLOODS

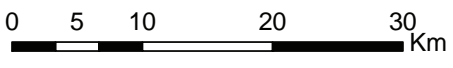
River Order - Subbasins Yauca River Basin



AYACUCHO

AREQUIPA

PACIFIC OCEAN



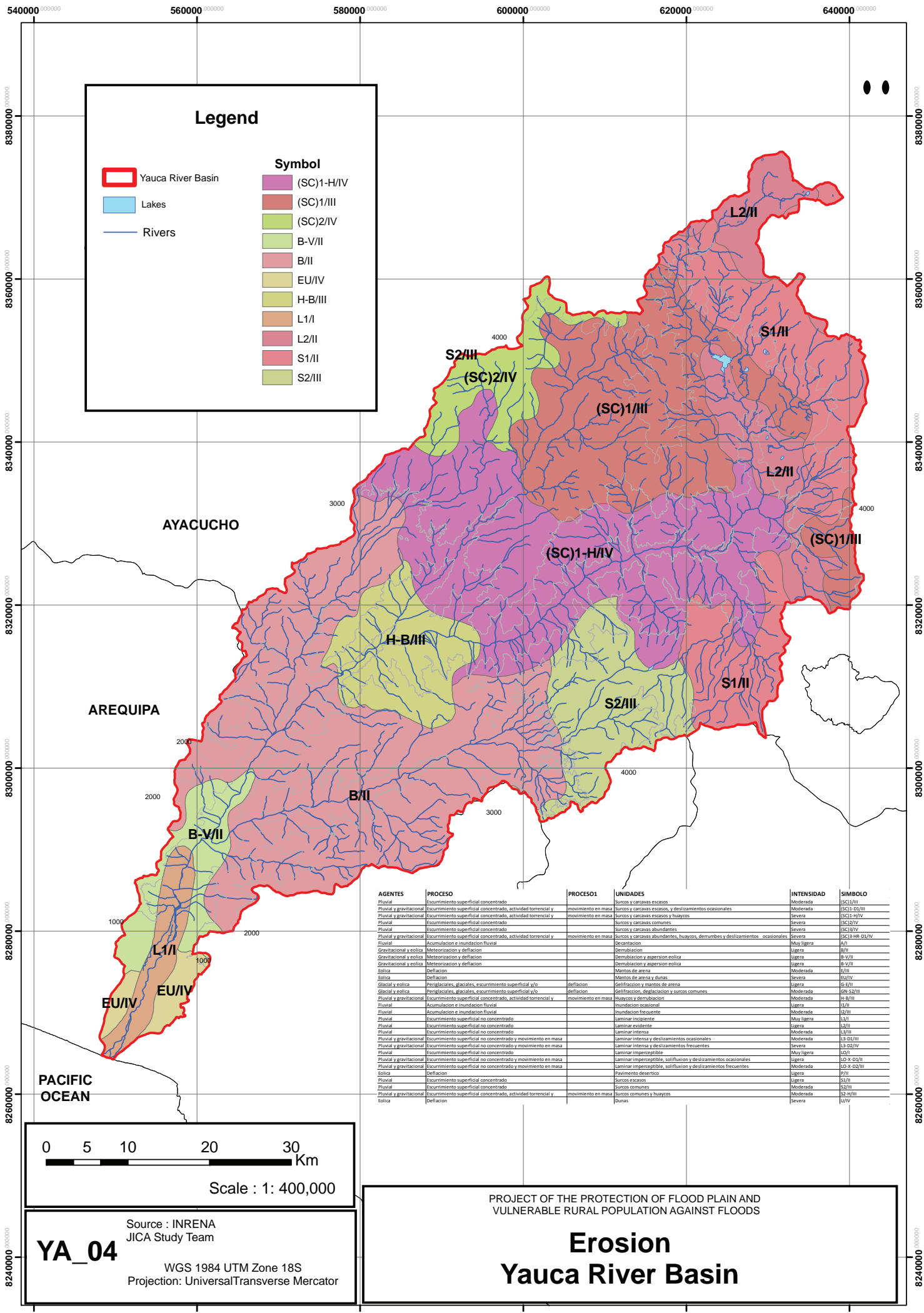
Scale: 1: 400,000

YA_03

Source: Geologic Data System
 JICA Study Team
 WGS 1984 UTM Zone 18S
 Projection: Universal Transverse Mercator

PROJECT OF THE PROTECTION OF FLOOD PLAIN AND
 VULNERABLE RURAL POPULATION AGAINST FLOODS

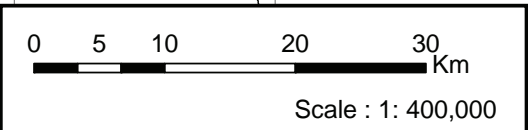
Geological Map Yauca River Basin



Legend

<ul style="list-style-type: none"> Yauca River Basin Lakes Rivers 	<h4 style="text-align: center;">Symbol</h4> <ul style="list-style-type: none"> (SC)1-H/IV (SC)1/III (SC)2/IV B-V/II B/II EU/IV H-B/III L1/I L2/II S1/II S2/III
--	--

AGENTES	PROCESO	PROCESO1	UNIDADES	INTENSIDAD	SÍMBOLO
Pluvial	Escurrimiento superficial concentrado		Suros y cárcavas escasos	Moderada	(SC)1/III
Pluvial y gravitacional	Escurrimiento superficial concentrado, actividad torrencial y movimiento en masa	movimiento en masa	Suros y cárcavas escasos, y deslizamientos ocasionales	Moderada	(SC)1-D3/III
Pluvial	Escurrimiento superficial concentrado		Suros y cárcavas comunes	Severa	(SC)1-H/IV
Pluvial	Escurrimiento superficial concentrado		Suros y cárcavas abundantes	Severa	(SC)2/IV
Pluvial y gravitacional	Escurrimiento superficial concentrado, actividad torrencial y movimiento en masa	movimiento en masa	Suros y cárcavas abundantes, huaycos, derrumbes y deslizamientos ocasionales	Severa	(SC)3-HB-D1/IV
Fluvial	Acumulación e inundación fluvial		Deflatación	Muy ligera	A/II
Gravitacional y eólica	Meteorización y deflación		Ugiera	B/II	
Gravitacional y eólica	Meteorización y deflación		Denudación y aspersión eólica	Ugiera	B-V/II
Gravitacional y eólica	Meteorización y deflación		Denudación y aspersión eólica	Ugiera	B-V/II
Eólica	Deflación		Mantillos de arena	Moderada	L/II
Eólica	Deflación		Mantos de arena y dunas	Severa	L1/IV
Glacial y eólica	Periglaciales, glaciales, escurrimiento superficial y/o deflación	deflación	Gelifracción y mantos de arena	Ugiera	S-E/II
Glacial y eólica	Periglaciales, glaciales, escurrimiento superficial y/o deflación	deflación	Gelifracción, deglaciación y suros comunes	Moderada	(S)1-S2/II
Pluvial y gravitacional	Escurrimiento superficial concentrado, actividad torrencial y movimiento en masa	movimiento en masa	Huaycos y derrumbios	Moderada	H-B/III
Fluvial	Acumulación e inundación fluvial		Inundación ocasional	Ugiera	L1/II
Fluvial	Acumulación e inundación fluvial		Inundación frecuente	Moderada	L2/II
Pluvial	Escurrimiento superficial no concentrado		Laminar incipiente	Muy ligera	L1/II
Pluvial	Escurrimiento superficial no concentrado		Laminar evidente	Ugiera	L2/II
Pluvial y gravitacional	Escurrimiento superficial no concentrado y movimiento en masa		Laminar intensa y deslizamientos ocasionales	Moderada	L3-S1/II
Pluvial y gravitacional	Escurrimiento superficial no concentrado y movimiento en masa		Laminar intensa y deslizamientos frecuentes	Severa	L3-S2/IV
Pluvial	Escurrimiento superficial no concentrado		Laminar imperceptible	Muy ligera	L0/II
Pluvial y gravitacional	Escurrimiento superficial no concentrado y movimiento en masa		Laminar imperceptible, soliflución y deslizamientos ocasionales	Ugiera	L0-X-D3/II
Pluvial y gravitacional	Escurrimiento superficial no concentrado y movimiento en masa		Laminar imperceptible, soliflución y deslizamientos frecuentes	Moderada	L0-X-D2/II
Eólica	Deflación		Pavimento desértico	Ugiera	P/II
Pluvial	Escurrimiento superficial concentrado		Suros escasos	Ugiera	S1/II
Pluvial	Escurrimiento superficial concentrado		Suros comunes	Moderada	S2/III
Pluvial y gravitacional	Escurrimiento superficial concentrado, actividad torrencial y movimiento en masa	movimiento en masa	Suros comunes y huaycos	Moderada	S2-H/III
Eólica y gravitacional	Deflación		Dunas	Severa	L/IV



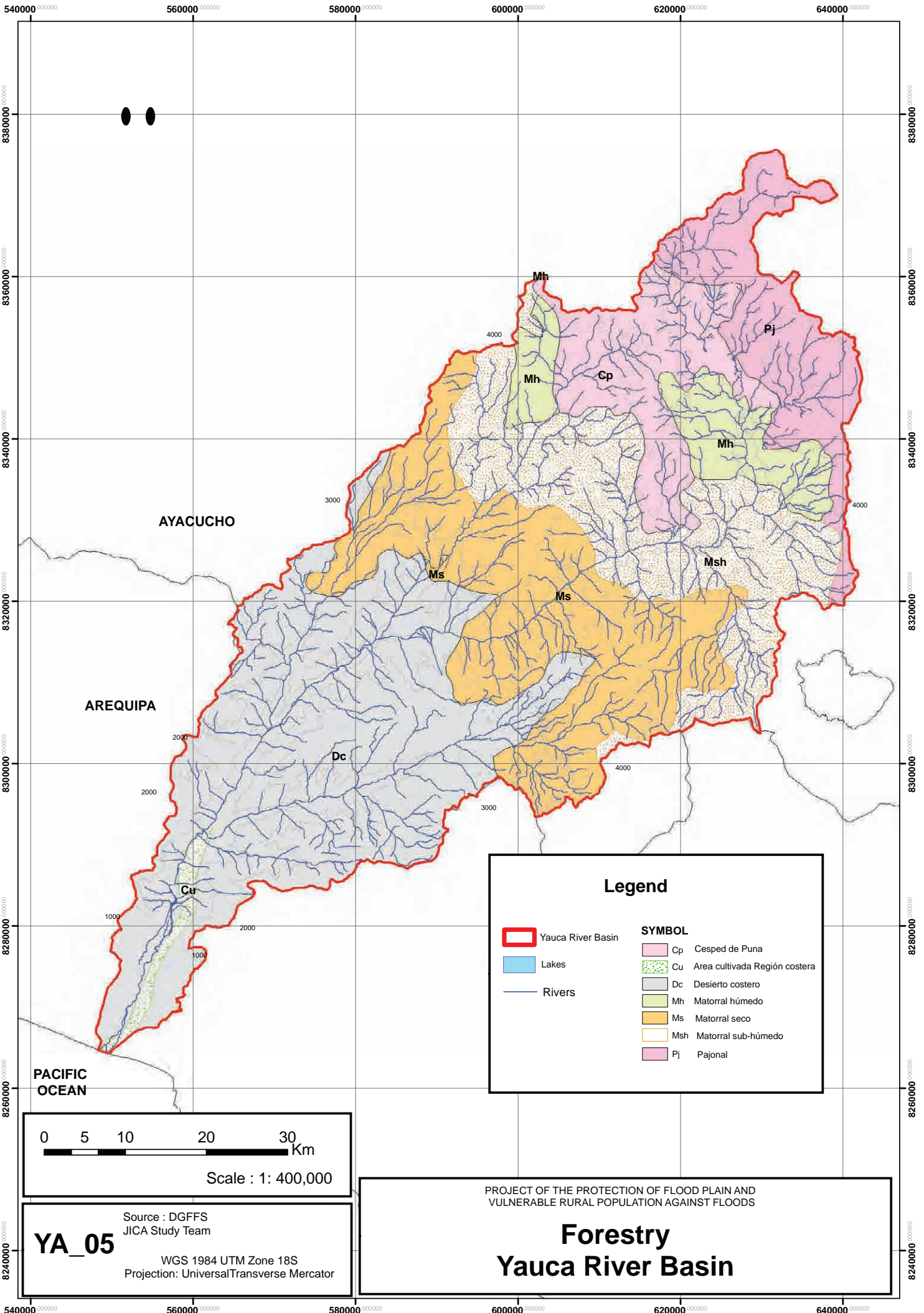
Source : INRENA
JICA Study Team

YA_04











WGS 1984 UTM Zone 18S
Projection: Universal Transverse Mercator

PROJECT OF THE PROTECTION OF FLOOD PLAIN AND
VULNERABLE RURAL POPULATION AGAINST FLOODS

Erosion Yauca River Basin



Legend

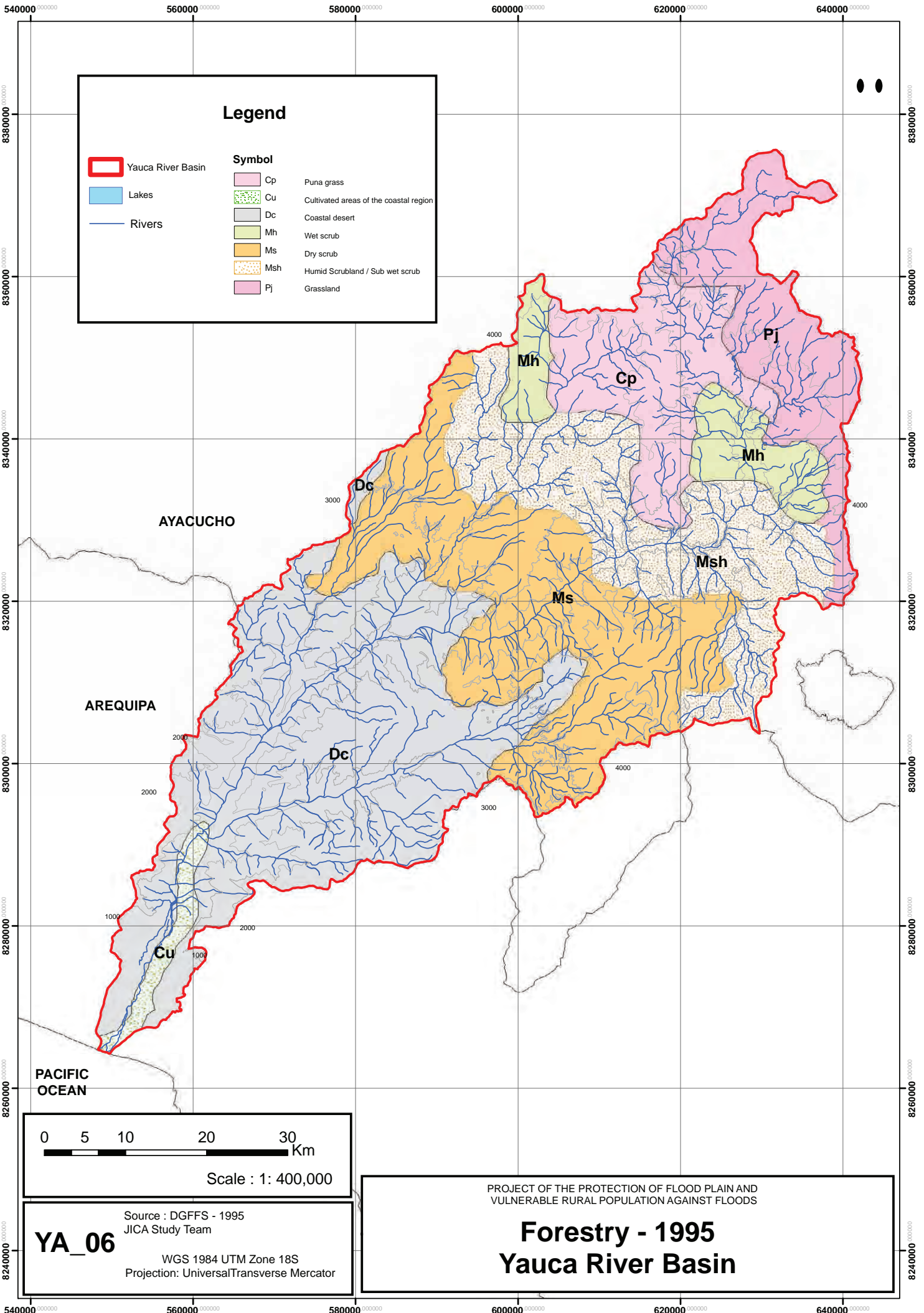
	Yauca River Basin		Cp Césped de Puna
	Lakes		Cu Area cultivada Región costera
	Rivers		Dc Desierto costero
			Mh Matorral húmedo
			Ms Matorral seco
			Msh Matorral sub-húmedo
			Pj Pajonal

0 5 10 20 30 Km
 Scale : 1: 400,000











YA_05
 Source : DGFFS
 JICA Study Team
 WGS 1984 UTM Zone 18S
 Projection: UniversalTransverse Mercator

PROJECT OF THE PROTECTION OF FLOOD PLAIN AND
 VULNERABLE RURAL POPULATION AGAINST FLOODS

Forestry
Yauca River Basin



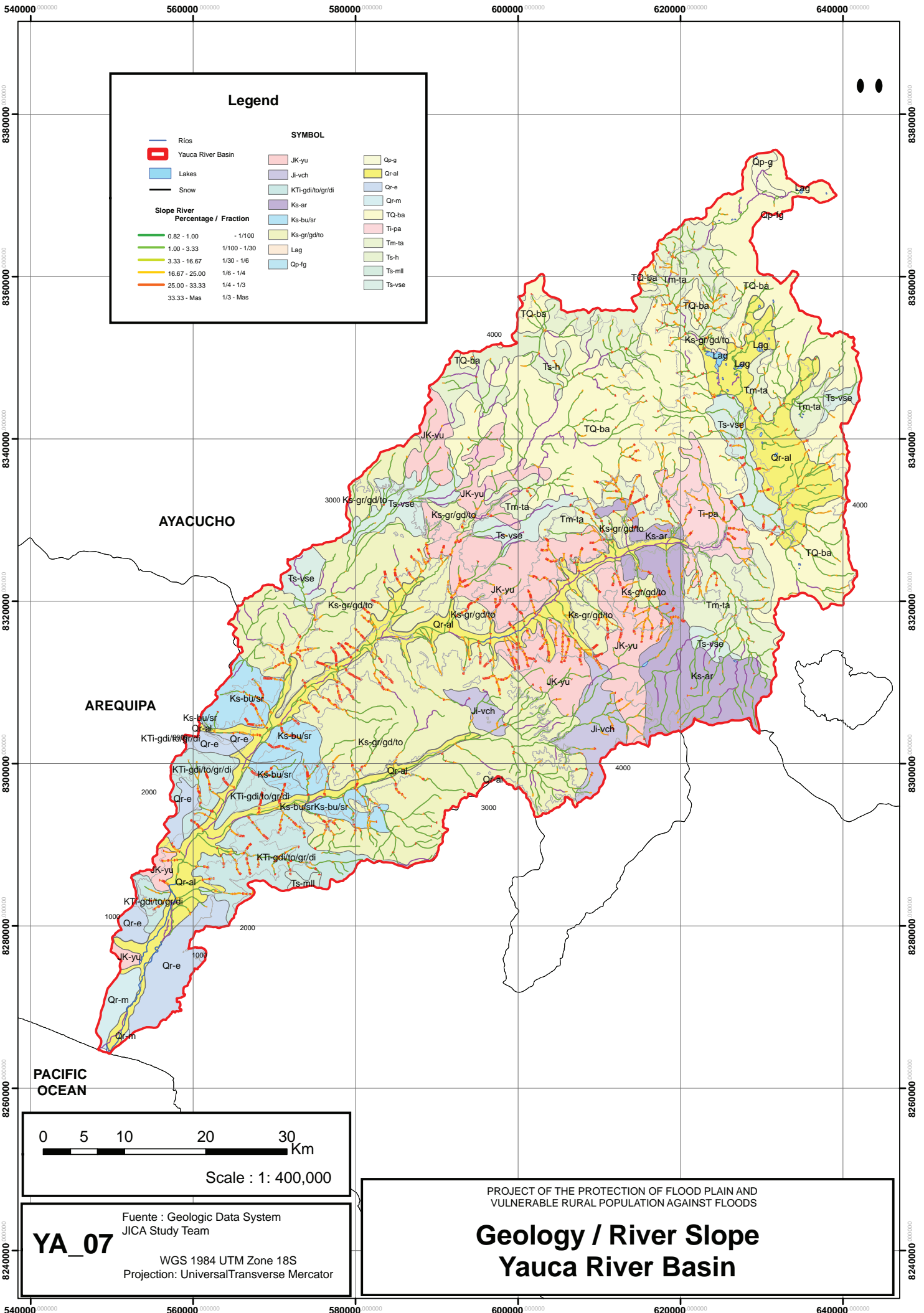
Legend

	Yauca River Basin	Symbol		Cp	Puna grass
	Lakes		Cu	Cultivated areas of the coastal region	
	Rivers		Dc	Coastal desert	
			Mh	Wet scrub	
			Ms	Dry scrub	
			Msh	Humid Scrubland / Sub wet scrub	
			Pj	Grassland	

0 5 10 20 30 Km
 Scale : 1: 400,000

Source : DGFFS - 1995
 JICA Study Team
YA_06
 WGS 1984 UTM Zone 18S
 Projection: UniversalTransverse Mercator

PROJECT OF THE PROTECTION OF FLOOD PLAIN AND
 VULNERABLE RURAL POPULATION AGAINST FLOODS
Forestry - 1995
Yauca River Basin



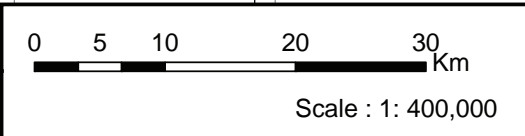
Legend

<ul style="list-style-type: none"> — Rios Yauca River Basin Lakes Snow <p>Slope River</p> <p>Percentage / Fraction</p> <ul style="list-style-type: none"> — 0.82 - 1.00 - 1/100 — 1.00 - 3.33 1/100 - 1/30 — 3.33 - 16.67 1/30 - 1/6 — 16.67 - 25.00 1/6 - 1/4 — 25.00 - 33.33 1/4 - 1/3 — 33.33 - Mas 1/3 - Mas 	<p>SYMBOL</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 33%;"> JK-yu</td> <td style="width: 33%;"> Qp-g</td> </tr> <tr> <td> Ji-vch</td> <td> Qr-al</td> </tr> <tr> <td> KTI-gdi/to/gr/di</td> <td> Qr-e</td> </tr> <tr> <td> Ks-ar</td> <td> Qr-m</td> </tr> <tr> <td> Ks-bu/sr</td> <td> TQ-ba</td> </tr> <tr> <td> Ks-gr/gd/to</td> <td> Ti-pa</td> </tr> <tr> <td> Lag</td> <td> Tm-ta</td> </tr> <tr> <td> Qp-ig</td> <td> Ts-h</td> </tr> <tr> <td></td> <td> Ts-mill</td> </tr> <tr> <td></td> <td> Ts-vse</td> </tr> </table>	 JK-yu	 Qp-g	 Ji-vch	 Qr-al	 KTI-gdi/to/gr/di	 Qr-e	 Ks-ar	 Qr-m	 Ks-bu/sr	 TQ-ba	 Ks-gr/gd/to	 Ti-pa	 Lag	 Tm-ta	 Qp-ig	 Ts-h		 Ts-mill		 Ts-vse	
 JK-yu	 Qp-g																					
 Ji-vch	 Qr-al																					
 KTI-gdi/to/gr/di	 Qr-e																					
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 Lag	 Tm-ta																					
 Qp-ig	 Ts-h																					
	 Ts-mill																					
	 Ts-vse																					

AYACUCHO

AREQUIPA

PACIFIC OCEAN



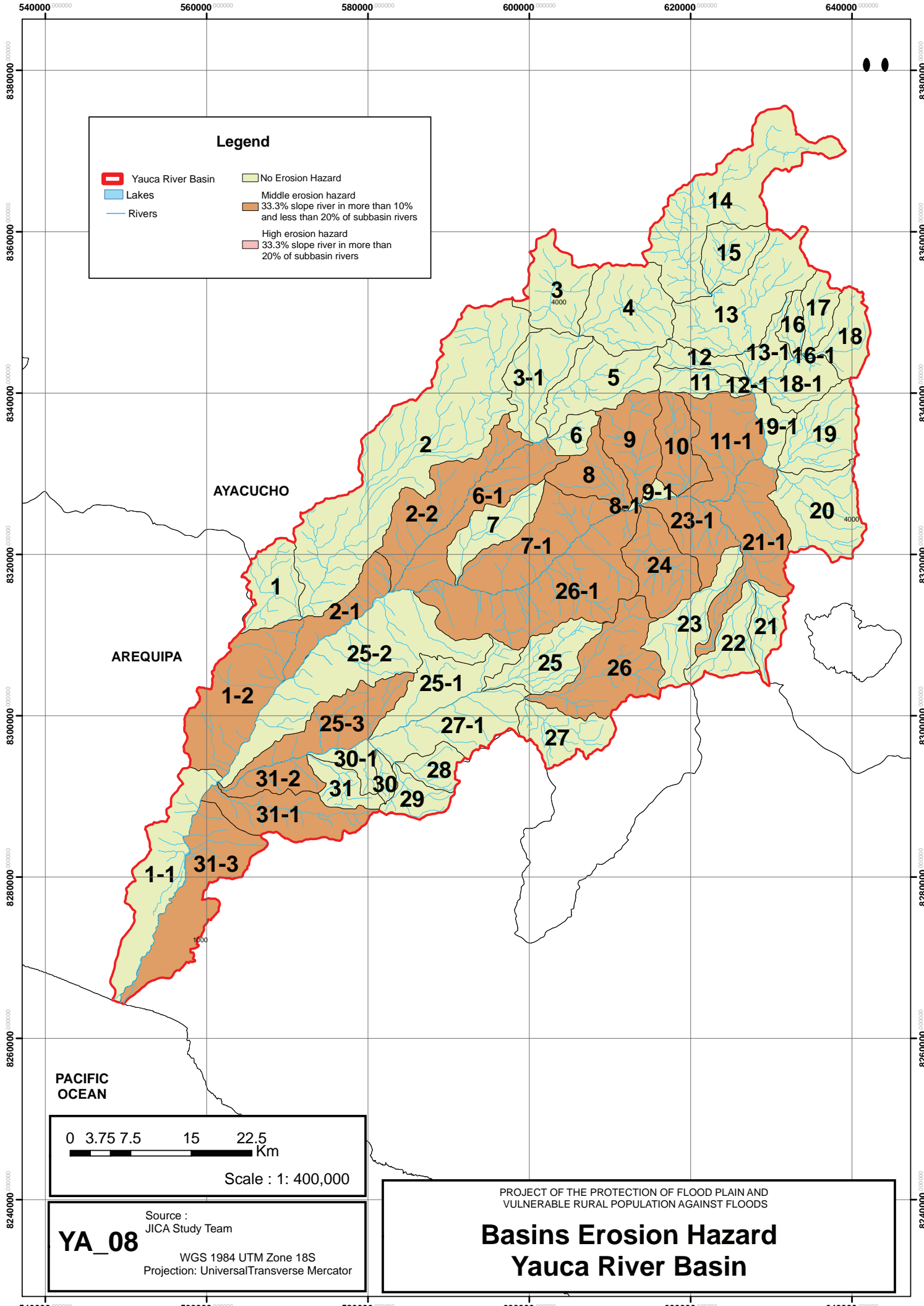
YA_07

Fuente : Geologic Data System
JICA Study Team

WGS 1984 UTM Zone 18S
Projection: Universal Transverse Mercator

PROJECT OF THE PROTECTION OF FLOOD PLAIN AND
VULNERABLE RURAL POPULATION AGAINST FLOODS

Geology / River Slope Yauca River Basin



Legend

- ▭ Yauca River Basin
- ▭ Lakes
- Rivers
- ▭ No Erosion Hazard
- ▭ Middle erosion hazard
- ▭ 33.3% slope river in more than 10% and less than 20% of subbasin rivers
- ▭ High erosion hazard
- ▭ 33.3% slope river in more than 20% of subbasin rivers

0 3.75 7.5 15 22.5 Km

Scale : 1 : 400,000

Source : JICA Study Team

YA_08

WGS 1984 UTM Zone 18S
Projection: Universal Transverse Mercator

PROJECT OF THE PROTECTION OF FLOOD PLAIN AND VULNERABLE RURAL POPULATION AGAINST FLOODS

Basins Erosion Hazard

Yauca River Basin