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| **SOLICITANTE** | | | **CENAPRED** | **PROYECTO DE INVESTIGACIÓN** | **VULNERABILIDAD DE ESTRUCTURAS DE PUENTES EN ZONAS DE GRAN INFLUENCIA DE CICLONES TROPICALES – GOLFO DE MÉXICO** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **No.** | **ACTIVIDADES** | | | | **PLAZO** | | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 | | 10 | | 11 | | 12 | | 13 | | 14 | | 15 | | **COSTOS** |
| **MESES** | **QUINCENA** | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| 1 | **Actividad 1 Trámites administrativos** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **$0.00** |
| 1.1 | Gestiones de cumplimiento al Oficio Circular no. SRACP/300/1022/2017, emitido por la Secretaría de la Función Pública | | | 2 | 4 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $0.00 |
| 1.2 | Gestiones de autorización de procedimiento administrativo y/o jurídico aplicable, según se desprenda de los resultados de lo señalado en el punto 1.1 | | | 1 | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $0.00 |
| 1.3 | Gestiones UG de Asuntos Jurídicos de la SEGOB y suscripción del instrumento | | | 4 | 8 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $0.00 |
| 2 | **Actividad 2 Recopilación de la información** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **$277,240.00** |
| 2.1 | Carreteras | | | 1 | 4 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $95,120.00 |
| 2.2 | Puentes | | | 1 | 4 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $111,360.00 |
| 2.3 | Estaciones meteorológicas | | | 1 | 4 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $70,760.00 |
| 3 | **Actividad 3 Recorridos carreteros** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **$522,000.00** |
| 3.1 | Zona del Golfo (Veracruz-Tampico) | | | 1.5 | 6 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $522,000.00 |
| 4 | **Actividad 4 Identificación de estructuras de puentes más vulnerables** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **$127,600.00** |
| 4.1 | Por ubicación | | | 0.5 | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $69,600.00 |
| 4.1 | Por condición física actual | | | 0.5 | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $58,000.00 |
| 5 | **Actividad 5 Análisis de información meteorológica** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **$800,400.00** |
| 5.1 | Revisión de estadísticas disponibles de huracanes | | | 0.5 | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $150,800.00 |
| 5.2 | Análisis de la información meteorológica recabada | | | 0.5 | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $150,800.00 |
| 5.3 | Elaboración de modelos regionales | | | 1 | 4 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $255,200.00 |
| 5.4 | Predicción estadística de la respuesta del viento en las regiones de huracanes | | | 0.5 | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $243,600.00 |
| 6 | **Actividad 6 Estudios topohidráulicos en los sitios de los puentes más vulnerables** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **$1,232,500.00** |
| 6.1 | Estudio topohidráulico antes de la época de huracanes. | | | 2 | 8 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $616,250.00 |
| 6.2 | Estudio topohidráulico después de la época de huracanes. | | | 2 | 8 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $616,250.00 |

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| **SOLICITANTE** | | | **CENAPRED** | **PROYECTO DE INVESTIGACIÓN** | | **VULNERABILIDAD DE ESTRUCTURAS DE PUENTES EN ZONAS DE GRAN INFLUENCIA DE CICLONES TROPICALES – GOLFO DE MÉXICO** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **No.** | **ACTIVIDADES** | | | | **PLAZO** | | | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 | | 10 | | 11 | | 12 | | 13 | | 14 | | 15 | | **COSTOS** |
| **MESES** | | **QUINCENA** | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 |
| 7 | **Actividad 7 Estudios de mecánica de suelos en los sitios de los puentes más vulnerables** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **$655,400.00** |
| 7.1 | Estudio de mecánica de suelos en puentes seleccionados, según su estado, ubicación y tipo de cauce. | | | 1 | | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $603,200.00 |
| 7.2 | Análisis de los resultados de los estudios de mecánica de suelos. | | | 1 | | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $52,200.00 |
| 8 | **Actividad 8 Elaboración de modelos matemáticos de las subestructuras de los puentes elegidos como más vulnerables** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **$429,200.00** |
| 8.1 | Elaboración de modelos | | | 1 | | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $324,800.00 |
| 8.2 | Análisis de resultados | | | 1 | | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $104,400.00 |
| 9 | **Actividad 9 Propuesta de medidas de mitigación y monitoreo** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **$355,660.00** |
| 9.1 | Priorización de riesgos | | | 1 | | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $92,800.00 |
| 9.2 | Propuesta de medidas de mitigación del riesgo | | | 1 | | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $104,400.00 |
| 9.3 | Propuesta de sistemas de monitoreo | | | 1.5 | | 3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $158,460.00 |
|  | | | | | | | | | | | | | | | | | | | | | | | | **Subtotal 1** | | | | | | | | | | | | | | **$4,400,000.00** |
| **COPARTICIPACIÓN** | | | | | | | | | | | | | | **$ 0.0** |
| **FOPREDEN** | | | | | | | | | | | | | | **$4,400,000.00** |
| **TOTAL PROYECTO PREVENTIVO** | | | | | | | | | | | | | | **$4,400,000.00** |

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| **SOLICITANTE** | **CENAPRED** | **PROYECTO DE INVESTIGACIÓN** | **VULNERABILIDAD DE ESTRUCTURAS DE PUENTES EN ZONAS DE GRAN INFLUENCIA DE CICLONES TROPICALES – GOLFO DE MÉXICO** |

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| **Gastos de Operación y Supervisión** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **(f)** |
| **1** | **No aplica** |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |
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| **CALENDARIO DE APORTACIONES** | **MES**  1 | **MES**  2 | **MES**  3 | **MES**  4 | **MES**  5 | **MES**  6 | **MES**  7 | **MES**  8 | **MES**  9 | **MES**  10 | **MES**  11 | **MES**  12 | **MES**  13 | **MES**  14 | **MES**  15 | **TOTAL** |
|  |  |  |  |  |  |  | **$277,240.00** |  | **$1,194,800.00** | **$858,400.00** | **$993,250.00** | **$104,400.00** | **$197,200.00** | **$774,710.00** | **4,400,000.00** |

El presente Proyecto de Investigación para la Prevención fue aprobado en la Quinta Sesión Extraordinaria a del Comité Interno de la Subcuenta de Investigación para la Prevención del Fondo para la Prevención de Desastres Naturales (Se anexa acta).