

## “INNOVATION RAIN ENHANCEMENT TECHNOLOGY BY LASER SYSTEM, PRACTICALLY PROVED IN LABORATORY CLOUD CHAMBER, ALSO IN THE ATMOSPHERE

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### **ABSTRACT**

*In the atmosphere, after lightning, precipitation is formed and heavy rainfall occurs. This is a well-known process. This natural lighting phenomenon has been practically demonstrated in the laboratory cloud chamber, as “Laser-induced condensation & water drops formation” and “Water drops formation by each and every laser shots in the cloud chamber”. In this process, lightning/laser creates high temperature which breaks the bonds of N<sub>2</sub> and O<sub>2</sub> to form excited N\* and excited O\*. Total heat energy of lightning/laser is completely utilized for breaking the bonds of N<sub>2</sub> and O<sub>2</sub> (Chopkar, 1993). These excited N\* and excited O\* move to new place by wind and undergo reactions to form NO and O<sub>3</sub> which are endothermic reactions. Heat energy required for these reactions are taken from the surrounding atmospheric clouds. As a result of these reactions, temperature falls, condensation takes place, seeds are created and rain occurs in analogous way as rain is created in nature by lightning. In this process, white clouds convert into black rainy clouds for rainmaking in the atmosphere. This process has been practically proved in the laboratory as “Production of ozone and nitrogen oxides by laser filamentation”. It is believed that “Laser photons photo-dissociate atmospheric compounds N<sub>2</sub> and O<sub>2</sub> and form ozone (O<sub>3</sub>) and nitrogen molecules (NO). Increase of O<sub>3</sub> and NO concentration after lightning has also been experimentally observed. That this lightning phenomenon created through artificial lightning by plasma laser pulse or laser system can produce rain in the atmosphere has been practically proved as “Laser-induced water condensation in air”. Scientists have succeeded in obtaining raindrops from an altitude of 45 to 75m of the atmosphere by terawatt mobile laser. IRRA Scientist Group proposes laser system of specification: 1012watt, 800nm, 500mJ, 120fs and 10Hz for this research project. It works when more than 65 % humidity is present in the atmosphere. Our findings could be used by scientists and engineers to create artificial rain as a new method. The results could be of immense benefit to human being.*

**KEYWORDS:** *Lightning, Laser, Dissociation, Endothermic Reactions, Condensation, Precipitation, Natural Seeding, Raindrops, Rainfall*