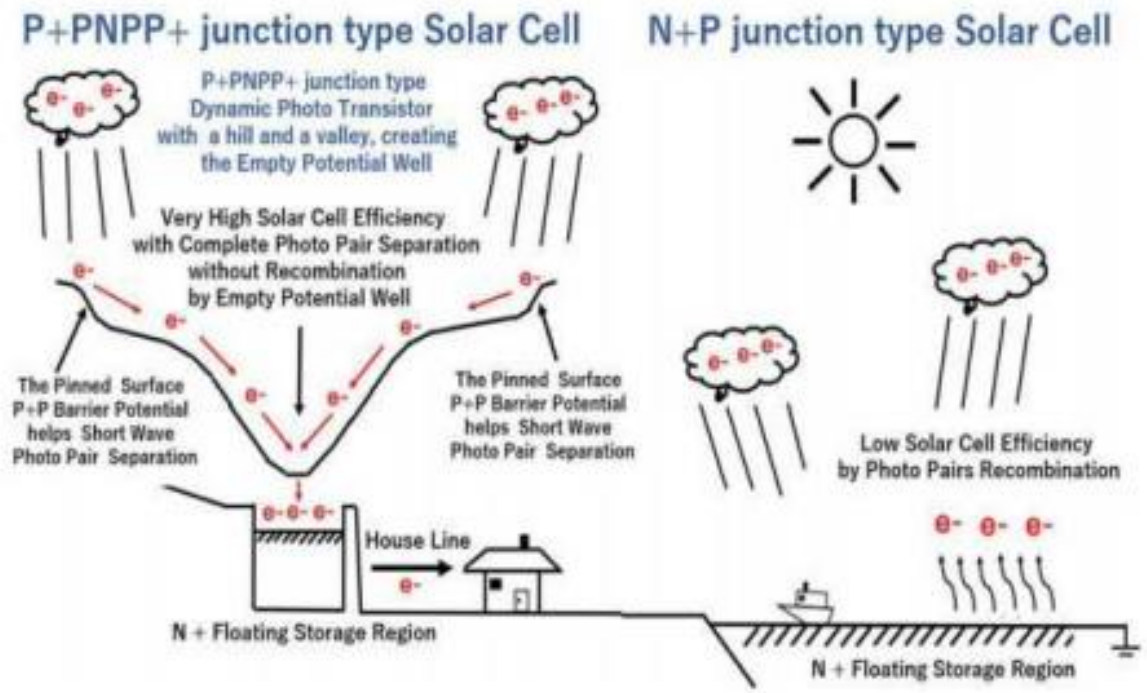


Fig. 14 Analogy of rain drops and photo electrons under the sunshine.

***Abstract*— This paper reviews the origin of Pinned Buried Photodiode and its historical development efforts. Three original Japanese Patent Applications filed by Hagiwara at Sony in 1975 are explained in details which defined the first triple junction type Pinned Buried Photodiode with the in-pixel vertical overflow drain (VOD) function with the electrical shutter capability,**

the most important feature of Pinned Buried Photodiode is the short-wave blue light sensitivity. Sun light has a great amount of short-wave blue light energy. Pinned Buried Photodiode type solar cell is similar to a very efficient rain-drops collecting system of a mountain hill and a valley with a storage dam while the simple N+P single junction type conventional solar cell is like collecting rain-drops at the open sea where most of rain drops are wasted.